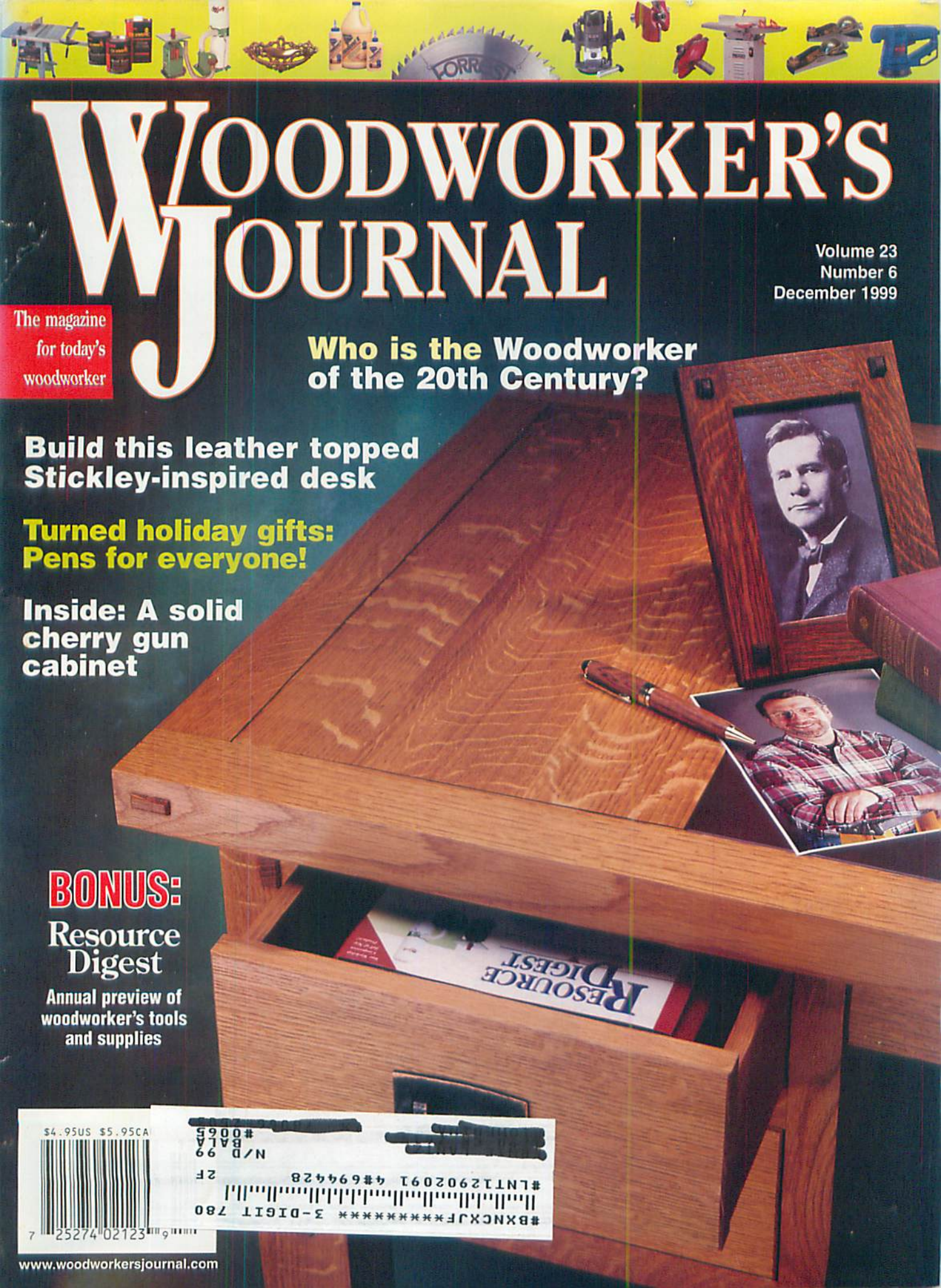
WOODWORKER'S JOURNAL

The magazine for today's woodworker

Volume 23
Number 6
December 1999



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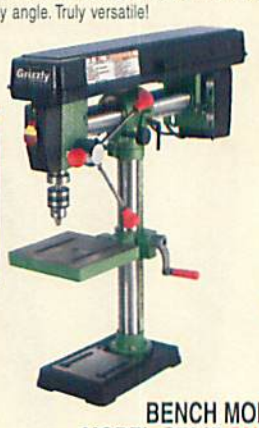

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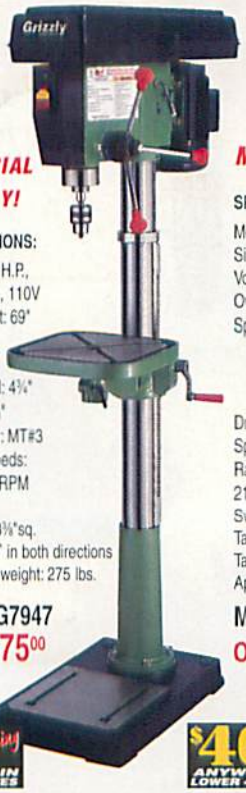

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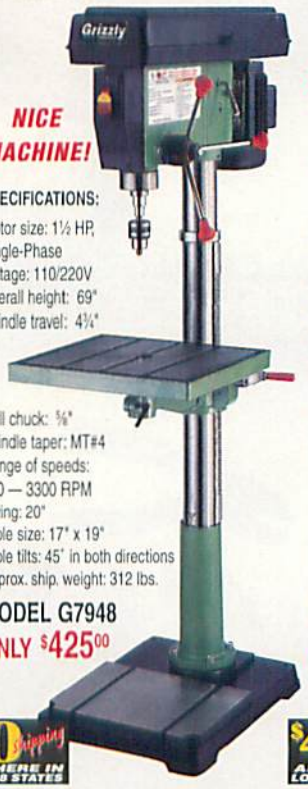

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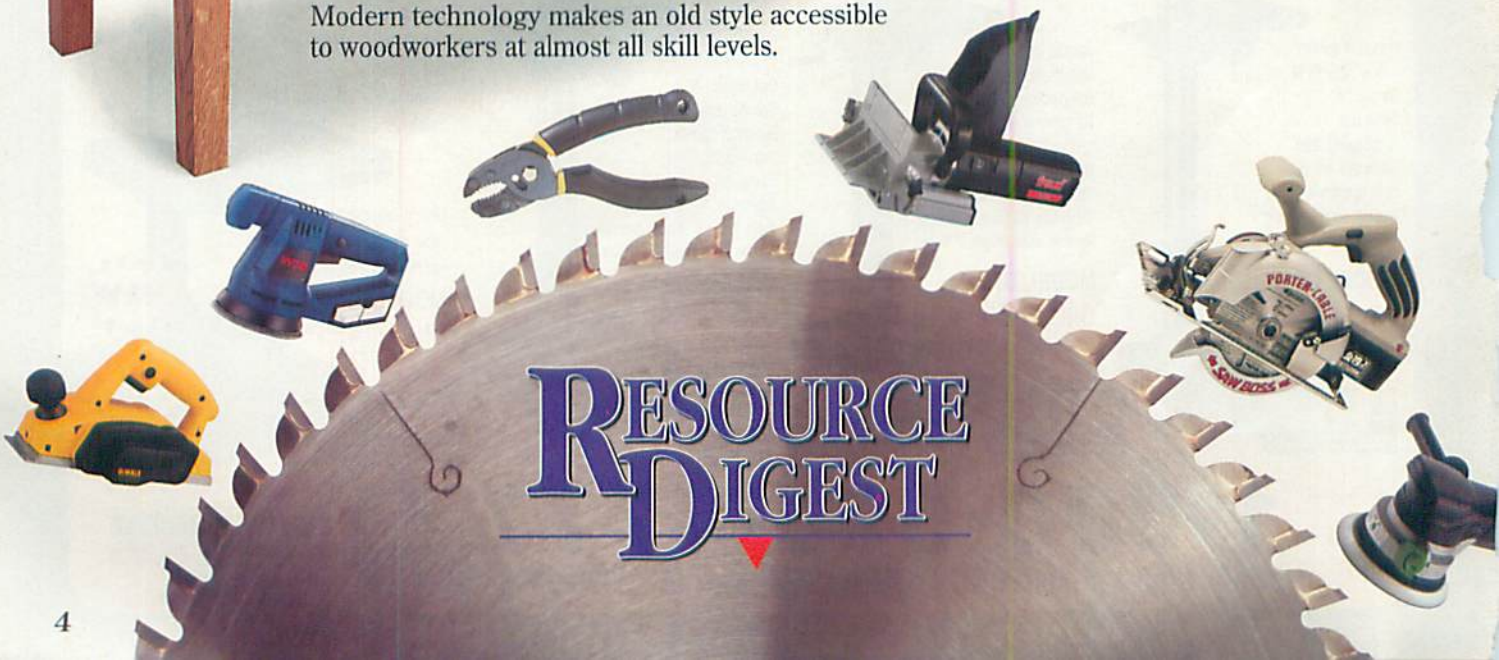

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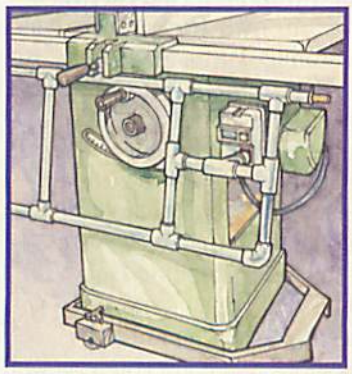

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Safety First

Learning how to properly operate power and hand tools is essential for developing safe woodworking practices. For purposes of clarity, necessary safety guards have been removed from the equipment shown in some of the photos and illustrations in Woodworker's Journal. We in no way recommend using this equipment without safety guards and urge readers to strictly follow manufacturers' instructions and safety precautions.

Page 8

1901 — *First issue of Craftsman magazine published.*

1905 — *George Nakashima, woodworker and author of "Soul of a Tree," born.*

1910 — *Boys paid a penny per gross to make wedges.*

1911 — *Charles and Henry Greene design the last of their bungalows.*

Timeline continues on page 8 ...

Woodworker of the 20th Century

Norm Abram may be the first woodworker that comes to your mind from the last decade, but he'd also be the first to tip his hat to our selection of Gustav Stickley as the Woodworker of the 20th Century *(see page 8)*. Perhaps 100 years from now Norm's name will be bandied about as a candidate for Woodworker of the 21st Century. After all, Stickley was about 43 years old when this century started, and was just hitting his stride — much like Norm is today.

Thanks to everyone who nominated their favorite Woodworker of the 20th Century (readers and professionals alike) and thanks especially to our friends at Ridgid® for sponsoring a fun contest. The winner of the shop full of Ridgid Tools will be featured in our next issue, as promised. It was a delightful process going through the hundreds of nominations we received from our readers. In addition to winner **Gustav Stickley** (and the popular choice of the TV generation, **Norm Abram**), plenty of other deserving names crossed our desks.

The biggest category among the runners-up, of course, was "other": people who, individually, each got less than one percent of the vote. Put them together as a category, and they're up to 23 percent. The names we received ranged from some of today's high-profile woodworkers, like **Ian Kirby** and **Silas Kopf** (both, by the way, are working on articles for upcoming issues of Woodworker's Journal) to the local celebrities who live next door to our readers and devote their time and talents to building toys for children or cabinets for missionaries.

Some of the fine woodworkers who pulled out in front of the pack were **Sam Maloof** and **James Krenov**, followed closely by **Wharton Esherick, George Nakashima** and **Tage Frid**. Of course our own **Rick White** was in the running with a few votes, as were **Wendell Castle** and **Michael Dunbar**, the Windsor chair-maker featured in our April 1999 issue.

Gustav Stickley was at the top of his game as this century got underway. Amazingly, his designs may be even more popular as it comes to a close.

At times, it seemed we should have set up different categories for the contest. We had electronic personalities, including **Bob Vila** of "This Old House" and **Bob Rosendahl** of "The Router Workshop" receiving votes, as well as fictitious characters **Al Borland**, (Tim "The Toolman" Taylor's assistant) and **"Homer,"** the Home Depot's cartoon mascot. It was a lot of fun and I hope you all enjoyed **Joanna Werch Takes'** series of articles covering the top woodworkers over the past 400 years.

A few house-cleaning items: Correction sheets are now available for the **Birdhouse** *(August 1999)* and the **Parlor Clock** *(December 1998)*. Also, the correct phone number for **Jamestown Distributors** (mentioned in our last issue), is 800-497-0010.

Larry N. Stoiaken

P.S. Check out our first annual Resource Directory on page 31.

photo courtesy of The Craftsman Farms Foundation, Parsippany, New Jersey

DECEMBER 1999
Volume 23, Number 6

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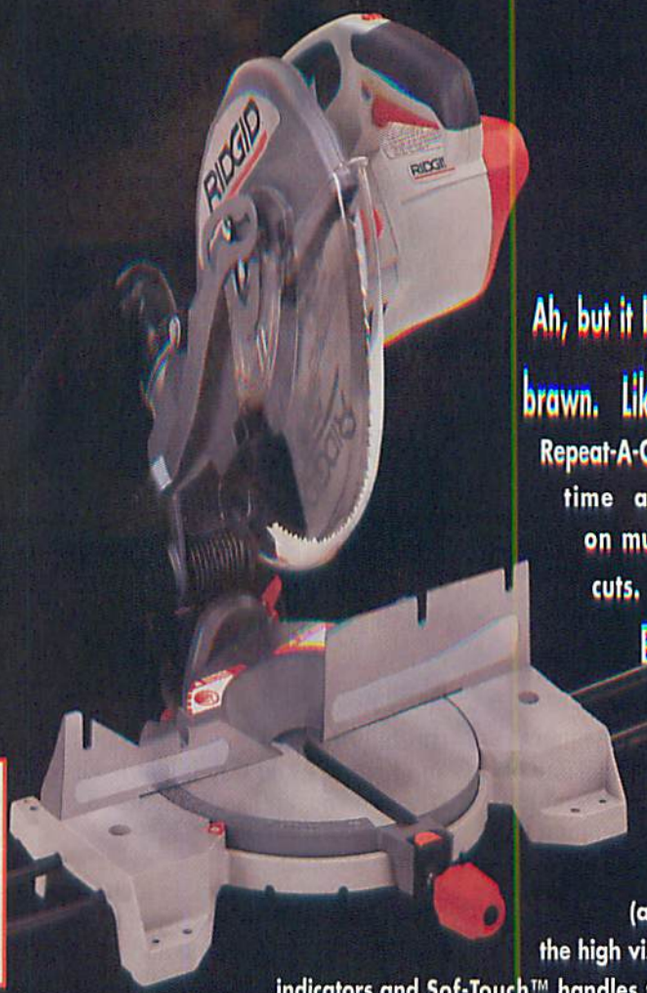

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1917 — *Stanley stops manufacture of furring planes.*

1919 — *Bauhaus school begins in Weimar, Germany.*

c. 1920s — *Jacques Rublmann incorporates legs as part of body of various pieces.*

1925 — *Calvin Coolidge begins collecting early American cabinetmakers' works for the White House.*

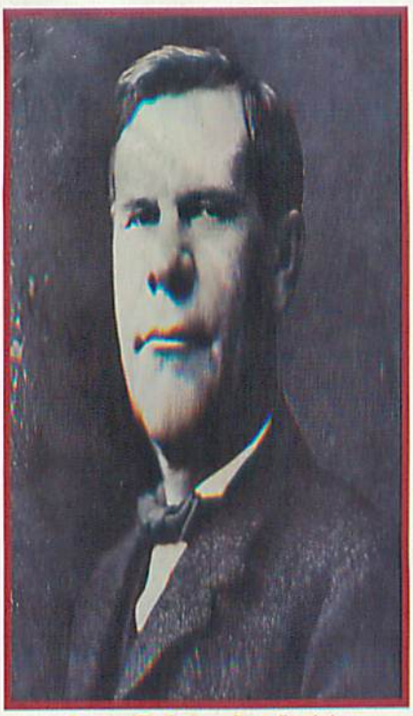
Gustav Stickley: Woodworker of the 20th Century

By Joanna Werch Takes

At the end of the 1900s, Woodworker's Journal — and our readers — name the woodworker with the most influence in the past 100 years.

At the beginning of the 20th century and now, at its end, woodworkers have looked to one man in particular for inspiration. The first decade of the 1900s saw his furniture style become enormously popular (both in terms of sales and imitation); in the last decade of the 1900s, furniture stores, woodworking schools and project designers are quick to cite his work as one of their main inspirations. His enduring legacy demands recognition for Gustav Stickley.

Born on a Wisconsin farm in 1858, Stickley supported the family after his father abandoned them — and learned early that he loved working with wood. "I began to study [wood's] beauty more carefully, to note its varied grains and textures, the way it lent itself to sturdy forms and soft finishes, and these things filled me with enthusiasm," he said.



Courtesy of The Craftsman Farms Foundation, Parsippany, New Jersey

From that early work in a chair factory near his Pennsylvania uncle, furniture became and remained an important part of Stickley's career. His exploits as a young man included making more chairs with his brothers and, one rumor says, designing New York's electric chair while director of manufacturing operations at a state prison.

Perhaps the defining moment of his life, however, came as Stickley entered his middle years. In 1898, at age 40, he sailed to England on a pilgrimage to meet the still-living founders of the Arts and Crafts Movement. Returning home with examples of Charles Voysey's furniture and textiles, Stickley also brought with him a conviction to Arts and Crafts ideals: honesty, morality and simplicity.

As the 1900s began, Stickley unveiled a line of furniture patterned after these ideals at the 1900 Grand Rapids Furniture Exposition. The exposed joinery recalled medieval times, an idyllic period for Arts and Crafts aficionados. Over the next few years, he saw many imitators of what came to be called Mission furniture. In contrast to their nails and screws and decorative mortises and tenons, Stickley employed dowels and functional mortises and tenons. He also paid attention to details other manufacturers overlooked, like running his desk drawers on hardwood guides.

Stickley's furniture reflected his philosophy. "The constructive features must be plainly visible and declare the purpose and use of the work," he said. Components, from structure to wood, were important

In addition to the tables and sideboards inside, Stickley also designed the house at Craftsman Farms, which became his family's home. Originally, he'd planned it as a boys' school.

photos courtesy of The Craftsman Farms Foundation, Parsippany, New Jersey

1939 — *Swedish Modern style becomes popular after success at New York World's Fair.*

c. 1941-45 — *World War II aviation drives rapid development of double-curved and double-molded plywood.*

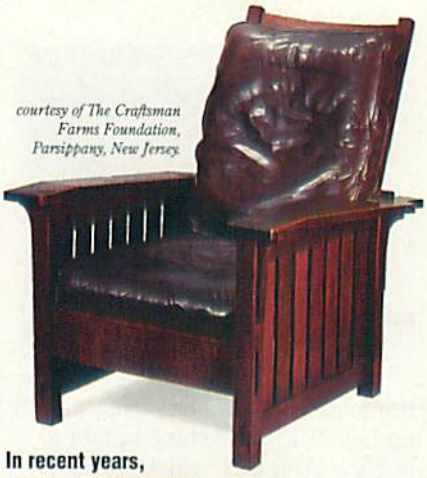
1945 — *Charles and Ray Eames introduce plywood Eames chair.*

1948 — *Tage Frid immigrates to U.S. from Denmark, where he holds the title of master craftsman.*

elements in his designs. At first, Stickley also vehemently opposed any ornamentation that wasn't part of the construction. Hiring Harvey Ellis in 1903, however, introduced some lighter construction methods and delicate inlays to the company — elements which continued to influence Stickley even after Ellis's sudden death in 1904.

Throughout his career, Stickley said, "I tried to make pieces that would be practical and comfortable ... the kind of things one could take pride in handing down to one's grandchildren."

The colors associated with those pieces were also important to Stickley. Autumn hues were his favorites. His chairs might have brown, green or red leather seats, and he offered some of his early furniture with gunmetal gray or Tyrolean green finishes. He was particularly fond of "a rich nut brown" produced by fuming oak with ammonia.



courtesy of The Craftsman Farms Foundation, Parsippany, New Jersey.

In recent years, Stickley's designs have sold for up to $66,000 at David Rago Auctions — and Barbra Streisand once paid $363,000 for a Stickley sideboard.

Operating under the motto "Als Ik Kan" or "All I Can" — which he had adapted from medieval Flemish painter Jan van Eyck— Stickley spread the Arts and Crafts ideals through social activities as well as furniture. As early as the late 1890s, he tried to establish a national union of chair manufacturers. That effort failed, but when he set up his own company in 1901 as United Crafts, it was an early profit-sharing enterprise: both the workers and

continues on page 10 ...

Who won the tools for the next millennium?

Dear Readers:

Thank you for sending your nominations for our Woodworker of the 20th Century contest! We've enjoyed reading through all of them and, on October 1st, we drew the name of the winner of our contest. You'll meet the lucky winner of the shop full of Ridgid tools in our February 2000 issue.

The Editors
Woodworker's Journal

P.S. Thanks go out to our friends at RIDGID *for providing the grand prize for our contest!*

the managers benefited. In 1904, the business reorganized to a more traditional configuration, and Stickley changed the name to Craftsman Workshops. At heart, however, he had a generous nature: on New Year's Day 1902, Stickley distributed $2,000 in gold coins to his employees.

He also wanted to share his philosophy with as wide an audience as possible, so in 1901, Stickley started publishing *The Craftsman* magazine. He wrote over 200 articles for the periodical, addressing subjects that ranged from cabinetmaking and homebuilding to dance, dress, family and national issues.

Craftsman readers learned woodworking techniques and, beginning

photos courtesy of The Craftsman Farms Foundation, Parsippany, New Jersey

This fall-front desk from the 1903-04 period is a good example of inlays, one of the lasting influences of Stickley's employee Harvey Ellis.

in 1903, they could order house plans from the magazine. For a short while, Stickley even owned a construction company which built Craftsman homes in New York and New Jersey. His empire had expanded to include a factory in Eastwood, New York, a family

The Craftsman magazine was another outlet for Stickley's philosophy. It covered woodworking lessons and national affairs.

home in Morris Plains, New Jersey and, in 1913, a 12-story building in New York City which housed the Craftsman showrooms, offices and restaurant.

By 1915, however, a changing market and some bad decisions had led Stickley to declare bankruptcy. He was briefly hospitalized for a nervous breakdown, and then lived out his days in an apartment at his daughter's Syracuse home. As a younger man, Stickley had probably designed the home and its furniture. In his retirement, he experimented with furniture finishes in the apartment sink. Stickley died April 21, 1942.

In his own time, famed architects Charles and Henry Greene recommended Stickley's furniture for the houses they designed. Readers of *The Craftsman* magazine and numerous imitators built furniture in his style. Today, as Dan Morgan of Lewiston, Idaho, wrote in his nomination, "the revival of his designs is influencing a whole new group of woodworkers."

Stickley, said nominator Jeff Greef of Davenport, California, "helped bring the craft back to a real quality of workmanship and away from the overly ornate leanings of the Victorian period. [He] brought real craftsmanship back home ... which, it seems to me, is the tradition all woodworkers are continuing today." With Dan, Jeff and others, Woodworker's Journal is proud to announce Gustav Stickley as the Woodworker of the 20th Century.

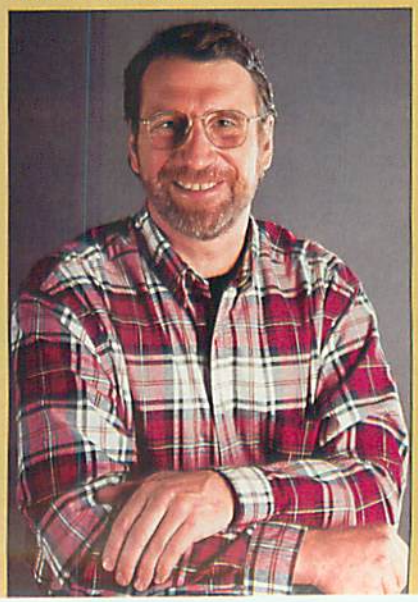
Norm Abram: Next Century

Another 20th century woodworker who deserves recognition is Norm Abram. Known to many as the master craftsman on "New Yankee Workshop" and "This Old House," Norm has gained his fame from TV — another 20th century phenomenon.

Norm got his big break when producer Russell Morash of public station WGBH "discovered" the talented carpenter he'd hired to build his barn. The "smallest scrap pile [Russ] had ever seen" inspired him to film Norm renovating a rundown Victorian house in Boston, and a star was born.

Prior to his TV career, Norm worked construction in New England. Born in Rhode Island, he learned woodworking from his carpenter father, helping to build custom homes during high school and college vacations.

According to nominators like Kevin Byrd of Lexington, North Carolina, Norm "has been an inspiration to woodworkers everywhere." Barney Howard of Sisters, Oregon, adds, "His tastes vary from project to project; he uses power whenever he can; his way follows the practical approach in project design and execution ... Here's to Norm!"



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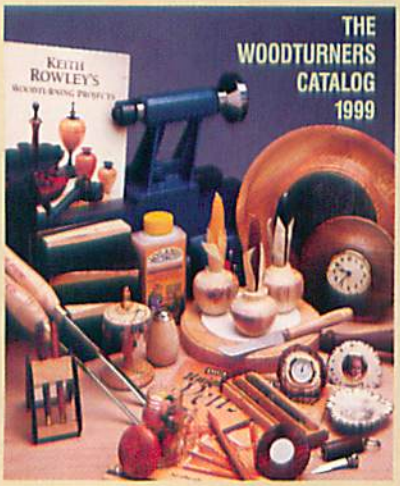

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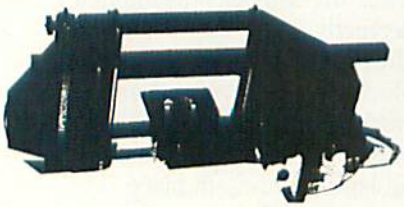

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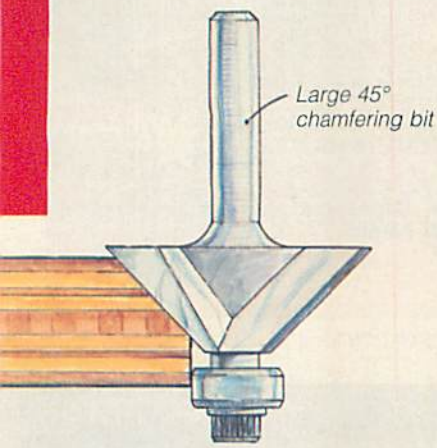
The Picks of the Picks

We have been selecting a "Pick of the Tricks" every issue for longer than some of us here might care to admit. Here, in the last issue of the 1900s, are some of our favorites from over the years. It was no easy task choosing these picks of the picks. And we all agreed that if we did it again tomorrow, another set of entries would likely prevail. Keep those tricks coming!

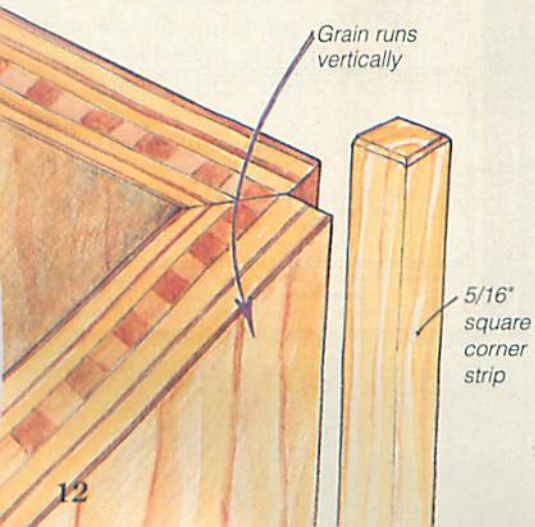


Mighty Miters

Mitered plywood corners are very fragile and susceptible to damage. I have a technique for reinforcing the corners that also eliminates any flaws in the miter cuts. This method is most effective when the miters run parallel with the grain of the plywood, unless you want to highlight the corners with contrasting grain patterns or colors.

Cut your plywood pieces 1/2" shorter than the lengths you need for your project, then rout the miters using a large 45° chamfering bit. The key here is to adjust the cutting depth of the bit to leave 1/4" of the edge unrouted, which is just what you need for the bit's pilot bearing to ride against. Now glue the perfectly cut miters together, and glue a 5/16" square strip into each corner rabbet. After the strip is secure you can plane it flush with the plywood. Pick your stock for the strip carefully and no one will ever know it's there.

Mike McGlynn
Minneapolis, Minnesota

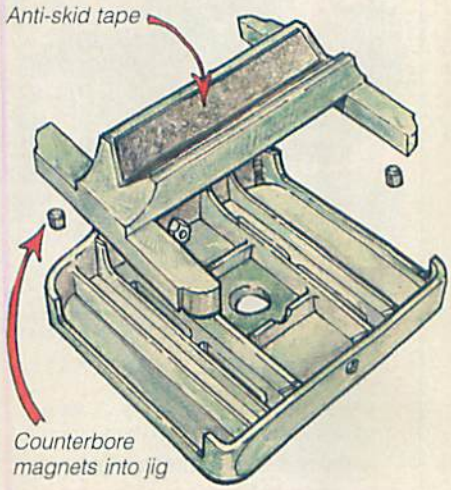


Roll Your Own ...

Problem: keeping blueprints and notes handy when you're in the middle of a project.

Solution: Mount a roll-up window shade above your workbench. Tape your drawings and plans right on the shade. When you need whatever is behind the shade, simply roll it up out of the way. While it's rolled up, everything stays neat, protected and right where you can find it.

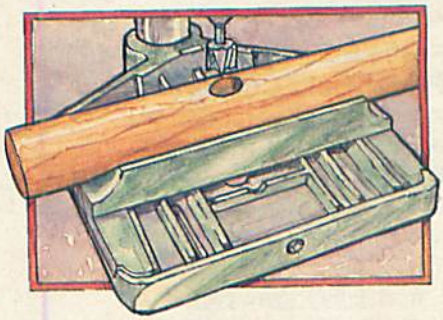
R. B. Himes
Vienna, Ohio

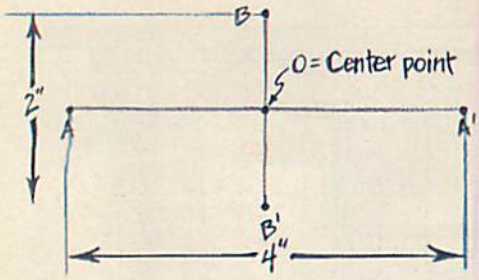


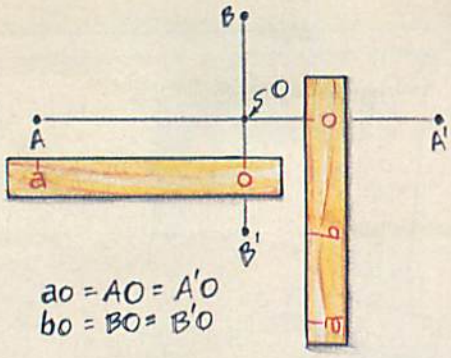
Ever Ready V-Block

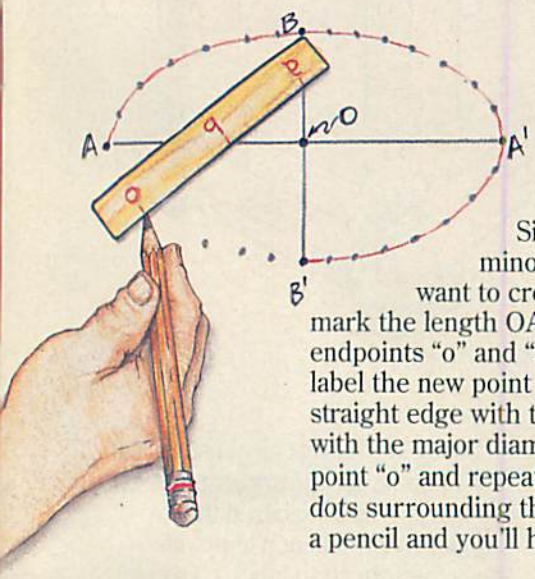
My V-block is conveniently mounted on the underside of my drill press table. For a base, I laminated two pine blocks and machined them to fit perfectly into the two outside cavities in the ribbing of the table. I then laminated three pine boards and made them into a V-blocks long enough to span the width of the table. I curved both ends of the V-block so it's less conspicuous when the table is turned upright. Once the V-block was aligned perfectly under the drill press chuck, I glued it to the two pine blocks in the cavities. Removal is easy. I embedded four ring magnets in the base to hold the V-block securely in place. They work perfectly.

Dick Dorn
Oelwein, Iowa









Drawing a True Ellipse

The most elegant oval shape is an ellipse, and I have a method to make this shape easy to draw. Simply lay out the major (AOA) and minor (BOB) diameters of the oval you want to create. Once the axes are drawn, mark the length OA on a straight edge and label the endpoints "o" and "a". Next, mark the length OB and label the new point "b". Now align point "a" on the straight edge with the minor diameter and point "b" with the major diameter. Mark a dot on your wood at point "o" and repeat this procedure until you have dots surrounding the axes. Connect the dots with a pencil and you'll have a true ellipse.

Cyril Fleisher
Chester, Pennsylvania

Winner! Cyril Fleisher was selected by a random drawing to win the Porter Cable 19.2 volt cordless circular saw above. Woodworker's Journal will pay from $50 to $150 for all Tricks of the Trade published. In addition, the reader whose trick is selected as our "Pick of the Tricks" will receive a free tool. To join in the fun, submit your original, unpublished trick to the editor. Include photos or drawings needed to explain your idea. Send all tricks to Woodworker's Journal, Dept. T/T, P.O. Box 261, Medina, Minnesota 55340. E-mail: editor@woodworkersjournal.com.

Tricks continues on page 14 ...

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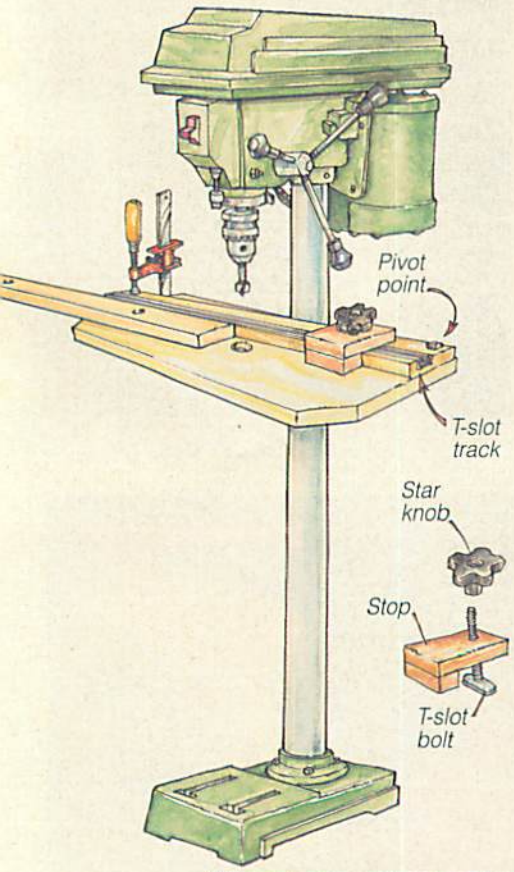
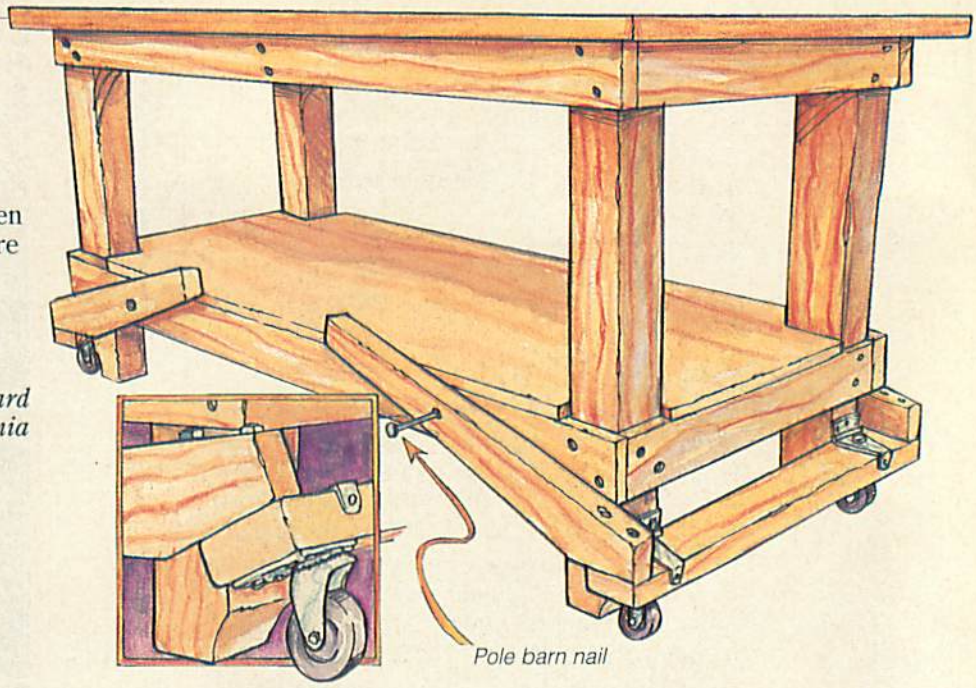
... continued from page 13

T-Slot for Stopping Instantly

Like many woodworkers, I use a pivot fence on my drill press, finding it easier to set up than other systems. To make mine even more useful, I use T-Slot hardware as a way to provide quickly adjustable stops. This way, I can place a stop where I need it with a twist of a knob.

Harold A. Hubbard
Berkeley, California





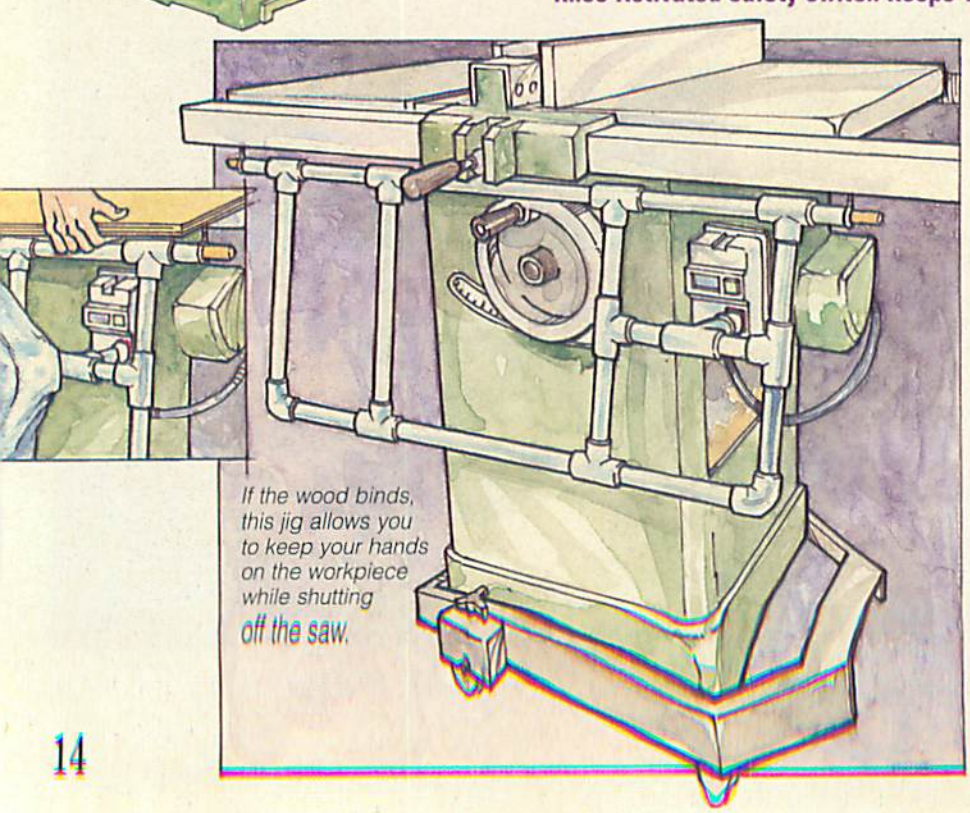
Hinged Arm Swivel Casters

My shop was getting too crowded, so I put my stationary tools on casters in order to push them against a wall when not in use. I devised a system for using swivel casters on a hinged arm. When the arm is in the lower position the workbench legs contact the floor and the casters rise out of the way. When the arm is raised into its upper position the casters swing to the floor and lift the legs off the ground. Once I worked out the glitches I used this system on all my large tools.

I used 100 lb. capacity casters, and 2 x 4 lumber for the arms and caster supports. Then I secured the supports to the bench legs with heavy weight strap hinges. To hold the arms in the raised position, I drilled a hole through each arm and each of the lower bench rails to accept pole barn nails. There's no mystery about the bench except that one side of each leg is tapered at the bottom to provide a nice tight fit for the caster.

Don E. Foster
Paonia, Colorado

Knee Activated Safety Switch Keeps Your Hands Securely on Work Piece



If the wood binds, this jig allows you to keep your hands on the workpiece while shutting off the saw.

This simple addition to my table saw required under $6 in materials and took about 30 minutes to complete. It allows me to safely and conveniently hit the off switch with my knee or shin while my hands are holding the stock. A light tap anywhere on the 1/2" PVC frame does the trick and the large open frame does not obstruct access to the on switch or the blade height crank. My saw is a Grizzly Cabinetmaker; however, most any make can be accommodated with slight alterations to the basic scheme.

J.D. Carlson
Cary, North Carolina

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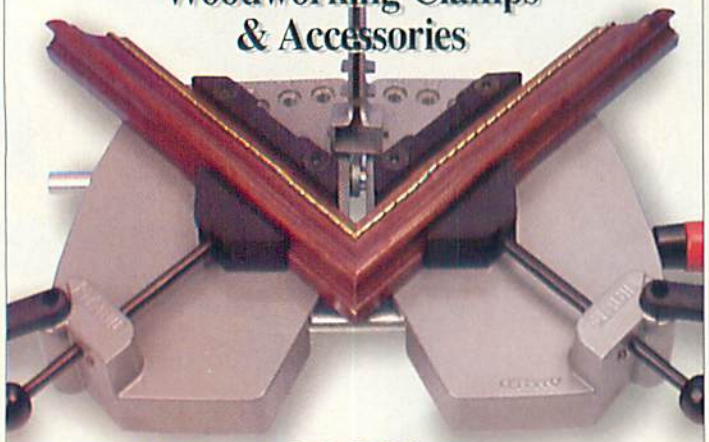

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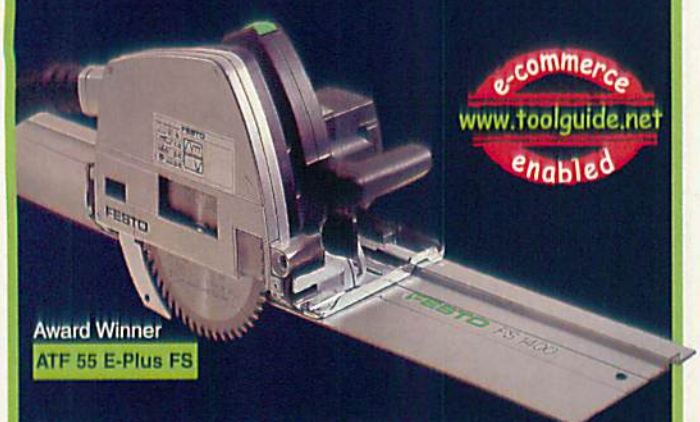

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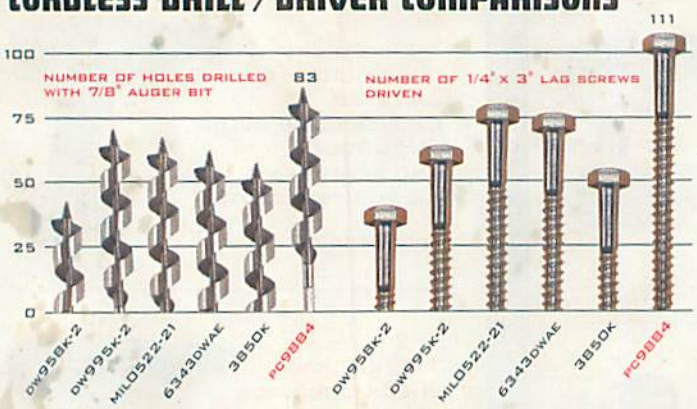

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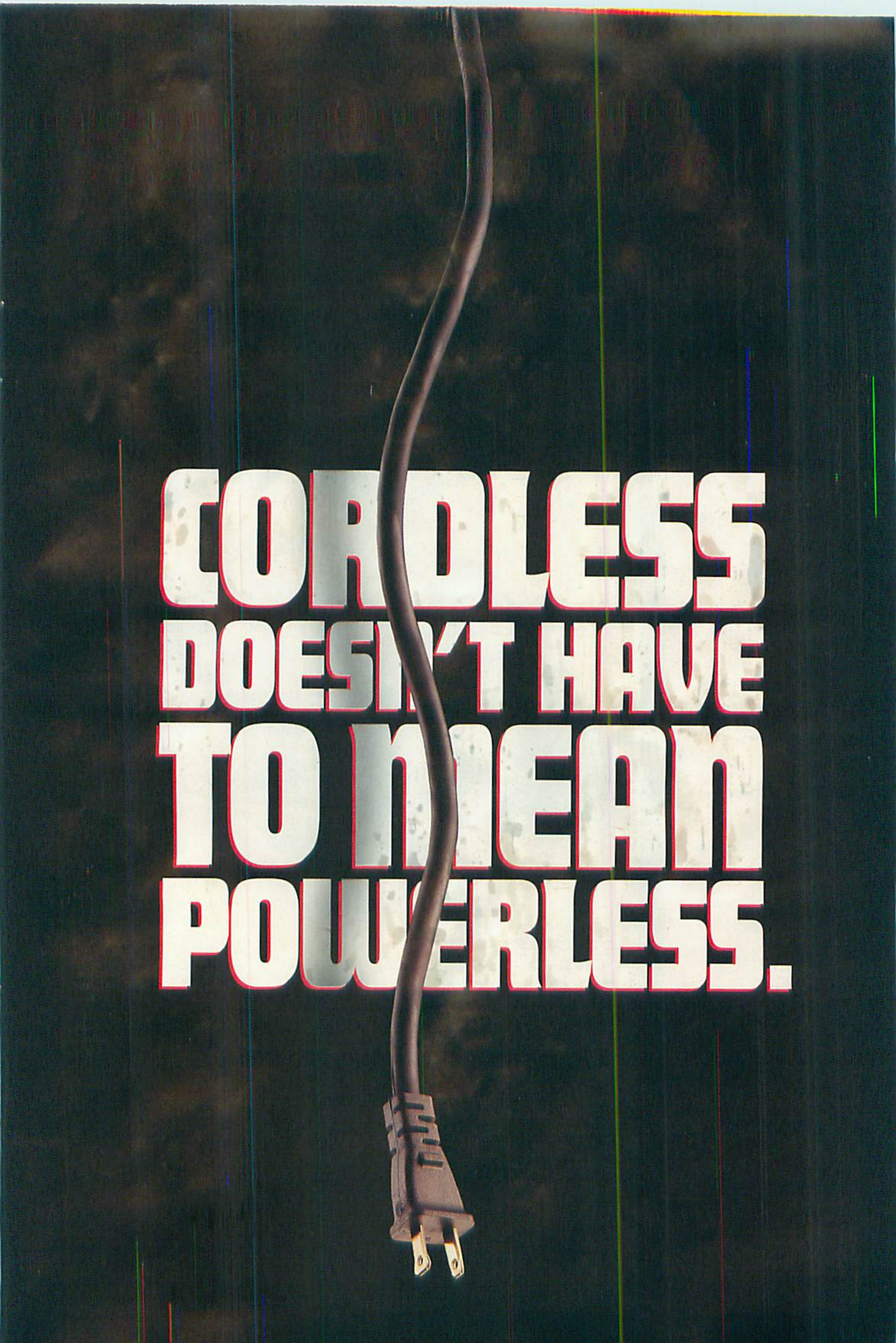
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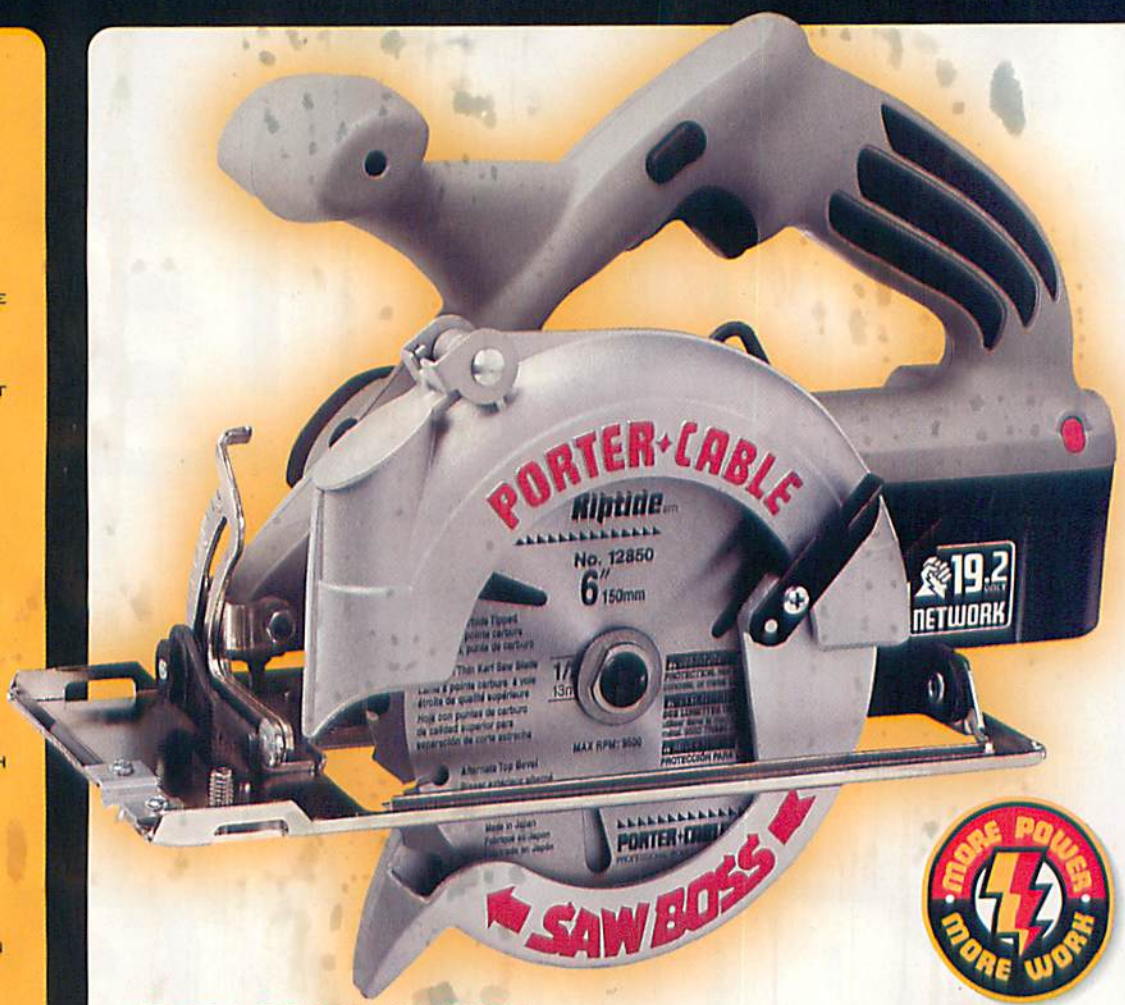

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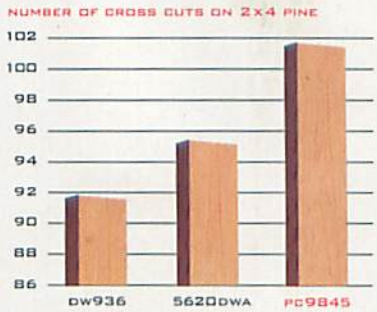
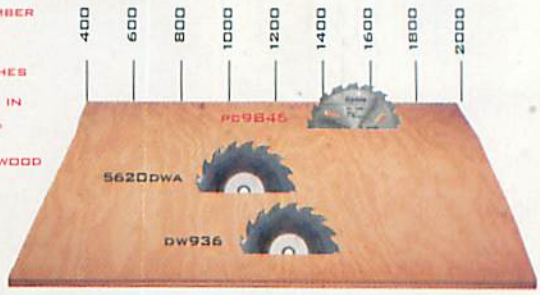
CORDLESS CIRCULAR SAW COMPARISONS*



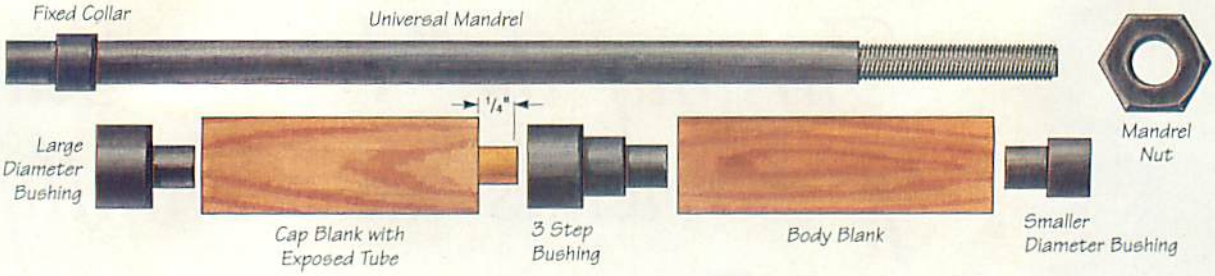


* TESTING PERFORMED BY AN INDEPENDENT LAB. (INTERTEK TESTING SERVICES). FOR COMPLETE TEST RESULTS, WRITE PORTER-CABLE, P.O. BOX 2468, TEST RESULTS, JACKSON, TN 38305.

Turning the "Write Stuff" for Friends and Family

By Jim Carroll

It's not exactly the night before Christmas, but it certainly is the time of year for turners to start turning. Every October, I get busy "paying" for my previous year's worth of turning purchases: a pile of stock, the latest and greatest in sharpening supplies and, this year, a new JET® mini-lathe. I add up the bills and then figure out how many gifts I have to make to "pay" for my previous year's investments. Beyond the economics, I end up with a bunch of happy relatives and a great "word of mouth" marketing plan that has brought in plenty of commissions over the years.



I chose a Montblanc style twist pen as my production gift this year. The pen parts retail for about $6.00 and the wood, depending on your approach, will cost from nothing (scrap bin) to a couple of dollars. Not bad, considering you can easily spend over $100.00 for one of the real things at an office supply store. The kit includes two brass tubes (a longer one for the body and a shorter one for the cap) and the other various pen parts.

If you're not set up to turn pens, the supplies box at right offers everything you need to get started. And of course, this is the ultimate scrap wood project. With such small blanks, you can really be selective in the material you choose. One last thing: the pen tubes must fit very tightly into the blank. I recommend using an "O" diameter bit for the Montblanc style set.

Blanks and Brass Tubes

To start, select your materials and, if you don't own them already, equip yourself with a universal mandrel and the appropriate bushing set. I use a variety of hardwoods and acrylics for my pen blanks, which, for this particular pen, I machined into 5/8" square strips. Crosscut a group of body blanks to 2 3/8" (the exact length of the longer brass tube) and a second group of cap blanks to 1 25/32", (about 1/4" short of the shorter brass tube). Keep the sets together (use a matching number on each set) and be sure your blanks are crosscut perfectly square. This results in a pen with tight joints between the turned material and the fittings.

Make yourself a stop jig for your drill press (see **Figure 1**) and, using an "O" drill bit, drill a hole through all your precut stock. Keep lifting the bit out of the stock to remove waste and be careful, the blank gets warm while drilling.

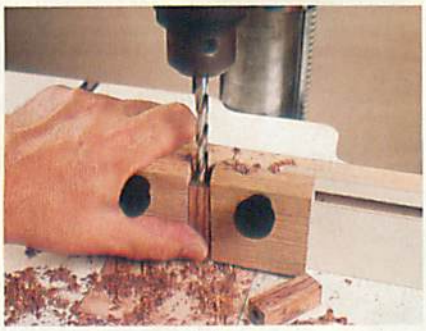


Figure 1: Equip your drill press with a good fence and stop system for this production project. Remember to continually back out the waste as you drill through the blank.

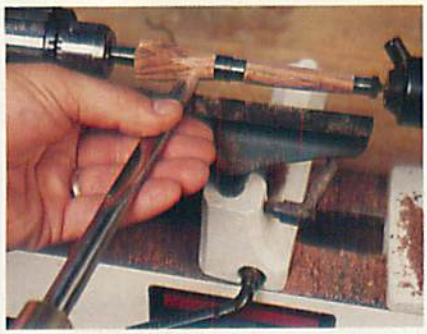


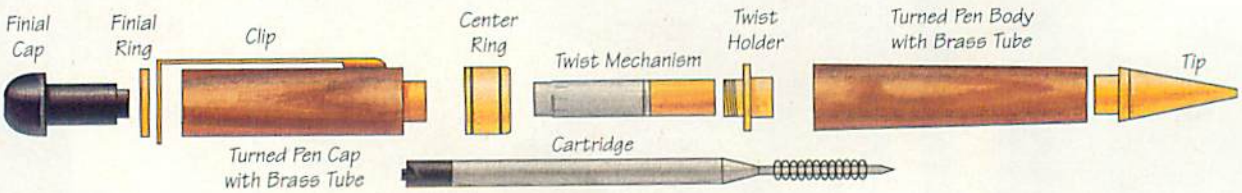
Figure 2: When turning the pen's elliptical shape, don't get aggressive and trim your bushings. It dulls turning tools and makes for very small pens toward the end of a run. Get close and switch to sandpaper.

Before gluing the brass tubes from the pen kit into your freshly drilled blanks, rough up their surface with a little steel wool. A great little tip I learned years ago is to jam one end of each brass tube into a raw potato. The resulting plug keeps glue out of the tube. Apply cyanoacrylic glue to the inside of one end of the blank and quickly push the brass tube into this end, until it is flush with the opposite end. The shorter blank will leave about 1/4" of the brass exposed. This glue dries very quickly, so only apply glue to one blank at a time during the process. Once all the body and cap blanks have brass tubes inserted, remove any excess glue and use a skinny dowel to pop out your potato plugs.

Turning, Sanding and Finishing

Now you're just about ready to move onto the lathe. You'll need a lathe chuck with a Morse taper and a universal mandrel. Mount your bushing parts and first set of blanks on the mandrel (see the **Elevation Drawing** above), finger tighten the nut and snug up the tail stock.

Get those safety glasses on, lose the long sleeve shirt and choose your weapons. I have a set of Sorby micro tools that work great for small turnings like this. I start with



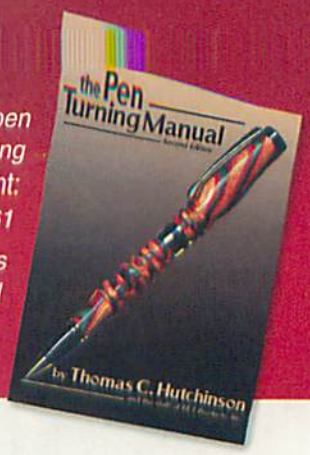
Project Supplies: *The following supplies are available from Woodworker's Journal:*

Universal Mandrel #21684	$10.99
Montblanc Style Bushing Set #21676	$5.99
Montblanc Style Twist Pen Set #19861	$5.99
Lathe Chuck #20777	$22.99
#1 Morse Taper #20785	$9.99
#2 Morse Taper #20793	$9.99
"0" Diameter Drill Bit #20074	$4.99

To order supplies, call 800-610-0883. Code WØ899.

HUT Products carries pen supplies and the "Pen Turning Manual" shown at right: Call: 800-547-5461

Woodturners Catalog carries a line of turning supplies and pen parts: Call: 800-551-8876



my 8 mm roughing gouge and wrap up with my 6 mm spindle gouge. The Montblanc style features an elliptical taper on both the cap and the body. Keep this taper in mind as you turn the blanks down almost even with the diameter of the bushings (see **Figure 2**), and then sand through the grits until you're flush with the bushings (see **Figure 3**). I use padding lacquer to finish my pens. It's easy to use and produces great results. Generally, once I get going, I can mount, turn, sand, finish and assemble a pen in about half an hour.

Figure 3: I sand and finish from the back on runs like this, so I don't have to keep moving the tool rest back and forth. Just be careful!

Final Assembly — Parting Thoughts

Before you start fitting the two halves of your pens together, take time to align the grain. I like mine aligned when the pen is in the closed position.

Moderate force is required to press fit the pen parts and blanks together, and once you do, it's just about impossible to separate them. Be sure to develop a system to keep your parts in order. Start with the pen body and press fit the tip into position, as shown below. Loosen up the clamp and do the same with the unthreaded stem of the twist holder at the other end. Slide the spring onto the ink refill and insert both through the twist holder. Complete the body assembly by screwing the twist mechanism onto the twist holder, as shown at the bottom of the facing page.

Now switch to the cap assembly and insert the stem of the finial cap through the finial ring and then through the clip's ring. Follow the same clamping procedure to press these pieces onto the cap. Slide the center ring over the exposed brass tube, flush to the shoulder of the pen cap. If the center ring is a little loose, you can carefully glue it into place with a drop or two of cyanoacrylic glue.

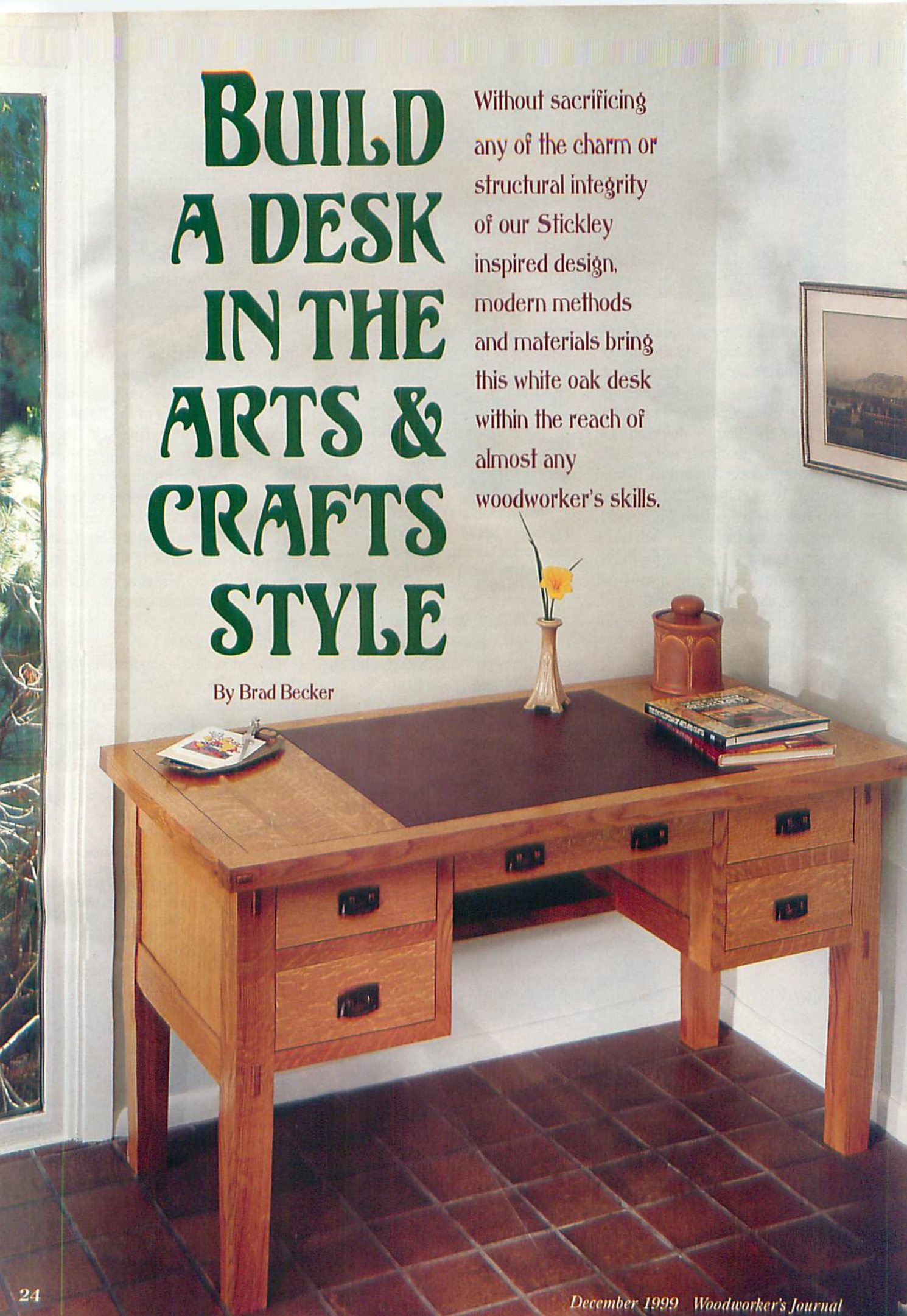
Finally, slide the cap over the twist mechanism and sign some lucky relative's card — you're done, at least for the moment. How many more pens you've got to go depends on how many happy relatives you're aiming for this year.

Once you complete a production run, a simple clamp brings the pens together in short order. Just stay organized during this process.

BUILD A DESK IN THE ARTS & CRAFTS STYLE

Without sacrificing any of the charm or structural integrity of our Stickley inspired design, modern methods and materials bring this white oak desk within the reach of almost any woodworker's skills.

By Brad Becker



"Building this beautiful yet practical piece of furniture reminded me of all the reasons I started woodworking ..."

– Brad Becker

The inspiration for the author's desk appeared in L & IG Stickley's catalog circa 1906–09.

Working as a cabinetmaker for a living might cause some people to forget their initial fondness for their craft. After all, work is ... well, just work. But I have to admit, building this beautiful yet practical piece of furniture reminded me of all the reasons I started woodworking in the first place and helped me to remember how much I really like what I do.

This desk is a series of simple frame and panel subassemblies, joined with modern biscuits, hidden screws and glue. I designed the desk with basic joinery ... anyone with a little experience, a good router and a table saw will have no problem building this modern Mission piece.

Start with the Back

The back of the desk is made up of two rails, two stiles and three panels (pieces 1 through 4). Cut these and all the other parts to the dimensions shown in the **Material List** on page 26. With any project, measuring and test fitting each part as you make it is wise. The cabinet shop proverb — measure twice, cut once — holds true for all woodworking. Chuck a 1/4" bit in your table-mounted router, set the fence, and mill 1/2" deep grooves in both edges of both stiles, plus the appropriate edges of the top and bottom rails. (All dimensions are on the **Elevation Drawings** beginning on page 26.) Each cut should be made in several passes, raising the bit about 1/8" each time to avoid tearout and excessive wear on the router.

These stiles and rails have 1/4" wide tenons centered on their ends. Form them using a fine crosscut blade in the table saw coupled with the saw's miter gauge and nibble away the waste in successive cuts.

The tenons at each end of the bottom rail are notched 1/4" from the bottom. These cuts can be made on a band saw, but I prefer a sharp backsaw. With that done, you're ready to dry fit the frame together and check your joinery. When you're pleased with the fit, apply glue to the stile and rail joints (but not the plywood panels, as they need to float freely). Make sure the subassembly is flat and square as you clamp it up. After the glue has cured, use a router and straightedge to plow a vertical 1/4" deep groove on the inside face of each stile. These grooves are a full 1¼" wide and will be used to join the interior frames to the back.

The Interior Frames

The interior frame subassemblies house the drawers and surround the desk owner's legs. Begin machining them at the router table by plowing a 1/2" deep groove in each stile (pieces 5) and rail (pieces 6) at the locations shown on the **Elevation Drawings**. Then move to the table saw to mill tenons on the ends of each rail. These are relatively simple cuts as there's no shoulder required. Glue and clamp the two subassemblies together, again letting the panels (pieces 7) float freely.

Machining the Legs

Use either solid or glued-up stock to make blanks for the legs (pieces 8). Either way, have the quartersawn grain showing on the front and back faces of each. After cutting the legs to size, taper their two outside faces, as shown below in **Figure 1**. I used a commercial jig and great care to slice the angles off of the legs (see the **Elevation Drawings**).

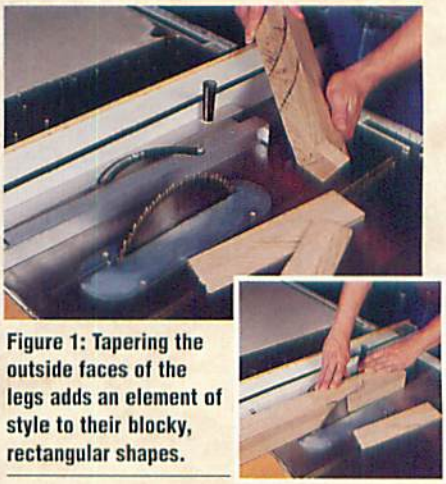
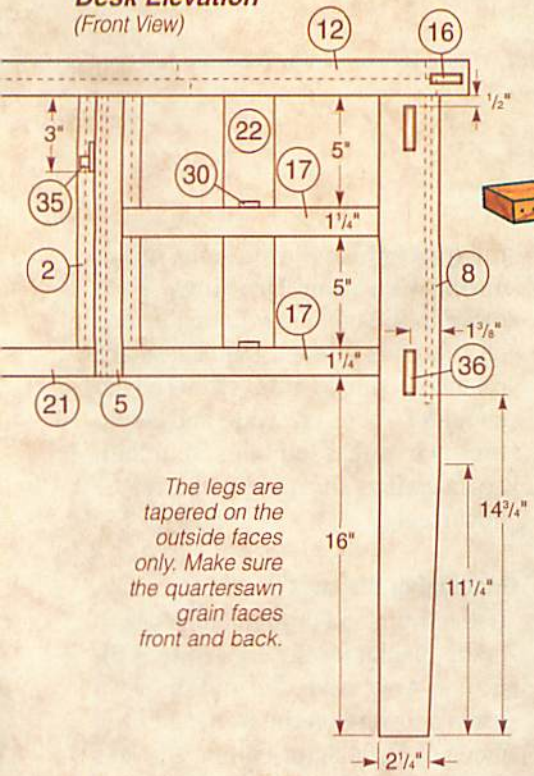


Figure 1: Tapering the outside faces of the legs adds an element of style to their blocky, rectangular shapes.

Move back to the router table to mill the 1/2" deep stopped grooves in each leg to accommodate the sides and back.

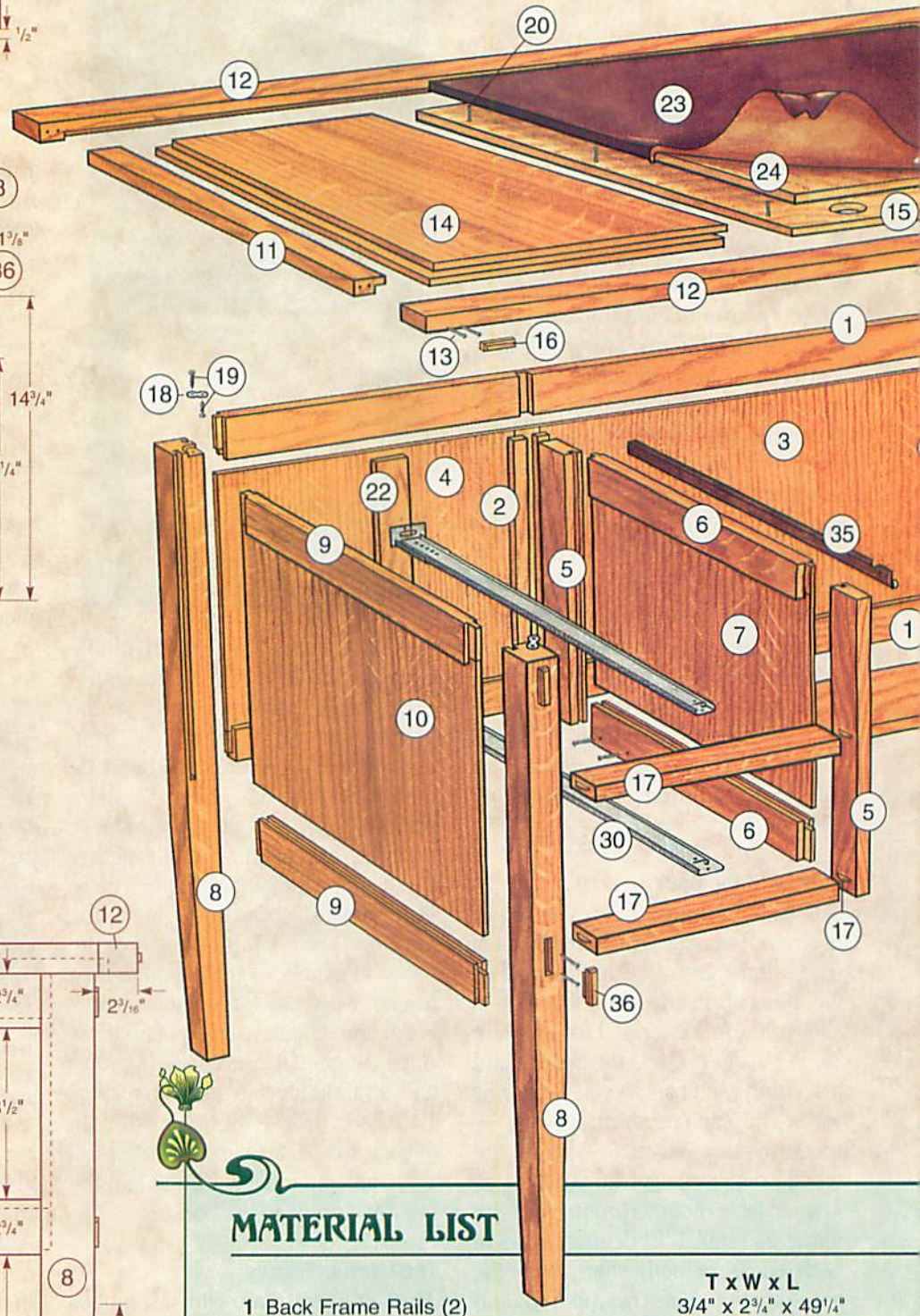
This project uses simple joinery and modern materials, like this white oak plywood, to create an authentic Arts & Crafts appearance.

Desk Elevation
(Front View)

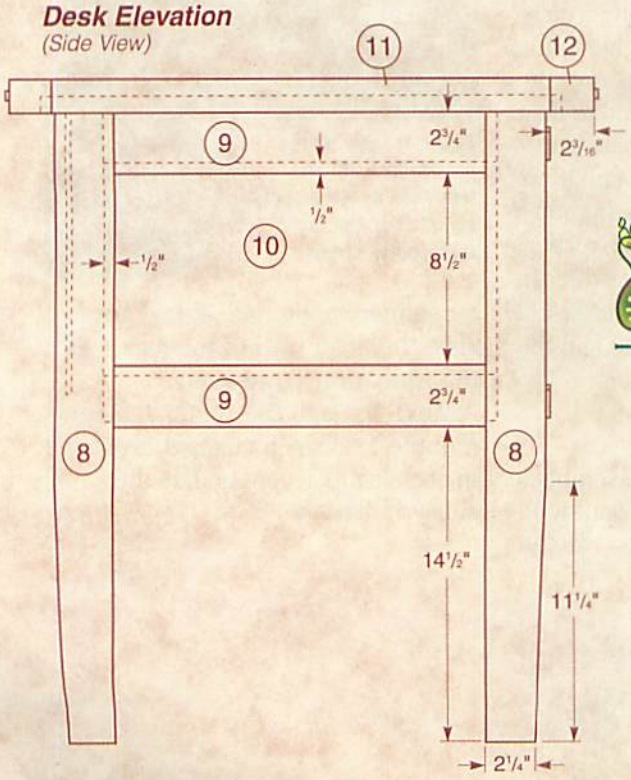


The legs are tapered on the outside faces only. Make sure the quartersawn grain faces front and back.

The desktop outer panels (pieces 14), are solid hardwood. Attach them to the desktop center panel (piece 15) with just a few drops of glue. This allows them to expand and contract from the center of the desk.

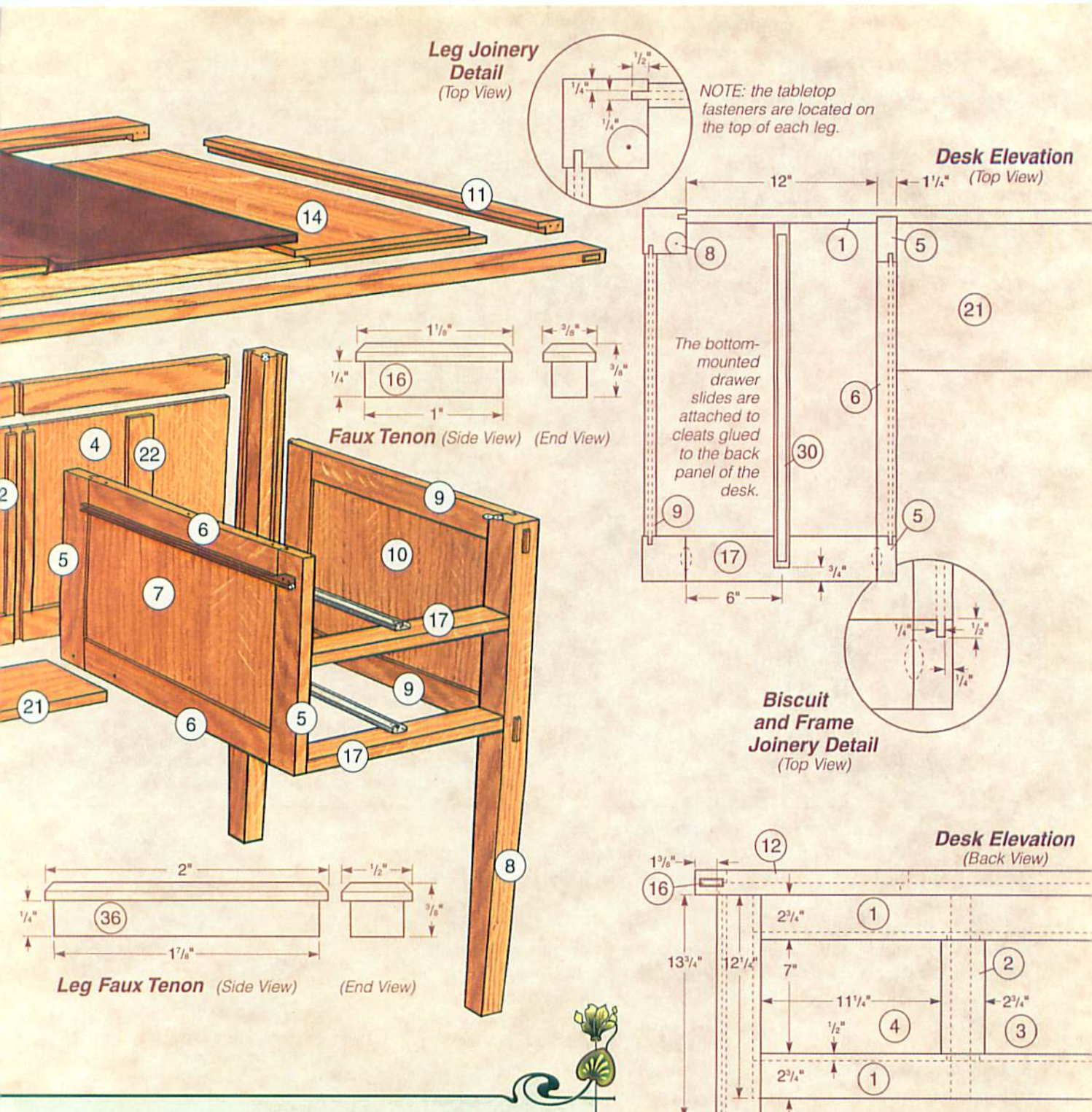


Desk Elevation
(Side View)



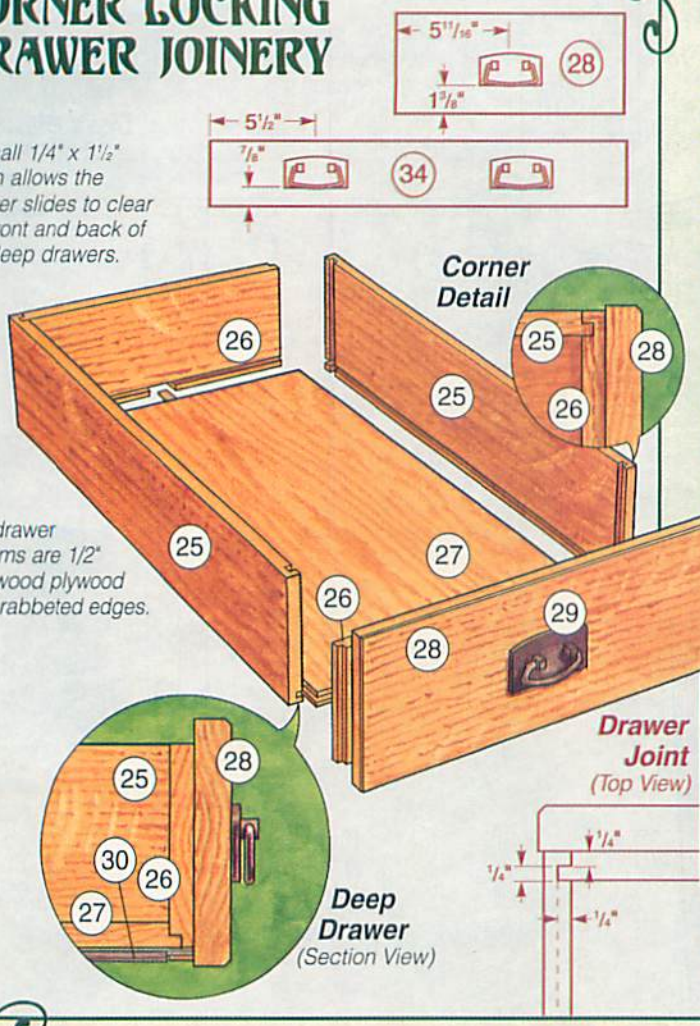
MATERIAL LIST

		T x W x L
1	Back Frame Rails (2)	3/4" x 2¾" x 49¼"
2	Back Frame Stiles (2)	3/4" x 2¾" x 8"
3	Back Frame Center Panel (1)	3/4" x 21" x 8"
4	Back Frame Side Panels (2)	3/4" x 12⅜" x 8"
5	Interior Frame Stiles (4)	1¼" x 2¾" x 12½"
6	Interior Frame Rails (4)	1¼" x 2¾" x 17½"
7	Interior Frame Panels (2)	1/4" x 17½" x 8"
8	Legs (4)	2¾" x 2¾" x 28½"
9	Exterior Frame Rails (4)	3/4" x 2¾" x 18⅛"
10	Exterior Frame Panels (2)	3/4" x 18⅛" x 9½"
11	Desktop Sides (2)	1½" x 2" x 23"
12	Desktop Front & Back (2)	1½" x 2" x 56½"



	T x W x L
13 Large Screws (12)	#10 x 3"
14 Desktop Outer Panels (2)	1½" x 12" x 24"
15 Desktop Center Panel (1)	3/4" x 24" x 30½"
16 Top Faux Tenons (4)	1/2" x 1⅛" x 5/8"
17 Drawer Dividers (4)	1¼" x 2¾" x 12"
18 Tabletop Fasteners (4)	Steel
19 Tabletop Fastener Screws (8)	Steel
20 Tabletop Screws (12)	#8 x 2"
21 Leg Space Shelf (1)	1¼" x 9" x 21¾"
22 Drawer Cleats (2)	1/4" x 3" x 7"
23 Leather (1)	25" x 31"
24 Leather Backer (1)	3/4" x 29½" x 23"

CORNER LOCKING DRAWER JOINERY

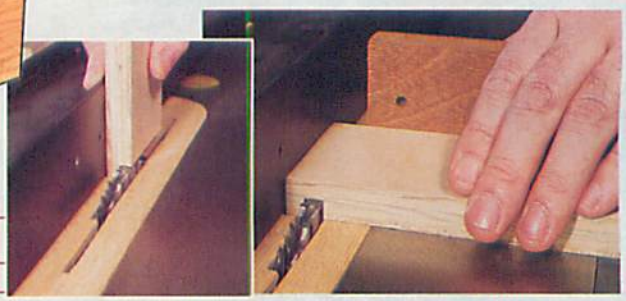


A small 1/4" x 1 1/2" notch allows the drawer slides to clear the front and back of the deep drawers.

The drawer bottoms are 1/2" hardwood plywood with rabbeted edges.

MATERIAL LIST (DRAWERS)

		T x W x L
25	Deep Drawer Sides (8)	1/2" x 4 1/4" x 19 3/4"
26	Deep Drawer Fronts & Backs (8)	1/2" x 4 1/4" x 10 3/4"
27	Deep Drawer Bottoms (4)	1/2" x 12 1/4" x 19 1/8"
28	Deep Drawer Faces (4)	3/4" x 4 7/8" x 11 7/8"
29	Drawer Pulls (6)	Mission style
30	Deep Drawer Slides (4)	21"
31	Pencil Drawer Sides (2)	1/2" x 2 1/2" x 18"
32	Pencil Drawer Front & Back (2)	1/2" x 2 1/2" x 20 1/4"
33	Pencil Drawer Bottom (1)	1/2" x 20 1/4" x 17 1/2"
34	Pencil Drawer Face (1)	3/4" x 3 1/4" x 21 5/8"
35	Pencil Drawer Slides (1 pair)	18"
36	Faux Tenons (4)	5/8" x 2" x 1/2"



The drawer fronts and backs (left inset) are rabbeted on their ends. Drawer sides (above right), have 1/4" dadoes milled across their ends. Both steps can be done on the same set-up, as shown above. Also, the 1/4" drawer bottom grooves are formed on the same table saw set-up.

Stopping the grooves in the right spot is simply a matter of matching up pencil marks on the leg and the router table fence. Wrap up the legs by using a router equipped with a 1/4" straight bit to create the small mortises for the legs' decorative faux tenons (see the sidebar on page 29).

Building the Exterior Frames

Cut and mill the four rails for the exterior frames (pieces 9), using the same techniques as you did for the interior frame rails; just notice that the lengths are different. Notch the tenons on the two bottom rails (see the **Elevation Drawings**) to create 1/4" shoulders.

Test the tenons' fit in the legs, then cut the panels (pieces 10) to size. Glue and clamp the rails to the legs (slipping the panels in place without glue as you do).

Building the Top

Begin making the top by creating a simple, butt-jointed frame with the front, back and sides (pieces 11 and 12). Start by cutting the parts to size, then chop the small, shallow mortises for the faux tenons and screws on the long frame pieces. Predrill each piece to properly accept the screws (pieces 13), then assemble the frame without glue. Turn the frame upside down and, using a bearing guided rabbeting bit, mill a rabbet around the inside edge (see **Figure 2**). Square the corners with a sharp chisel after you're done routing.

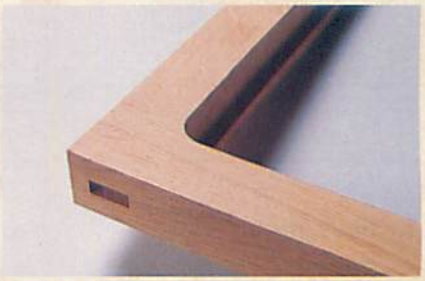


Figure 2: Assemble the desktop frame and cut a rabbet in its bottom edge with a bearing-guided bit. Square the corners with a chisel.

Select solid hardwood stock with beautiful grain and figure for the two outer desktop panels (pieces 14). Form rabbets on the edges of each panel: note that on three sides, this rabbet is milled on the top while on the fourth side it is milled on the bottom face. Cut the center panel (piece 15) from 3/4" plywood and, after predrilling screw holes, attach it to the frame with screws only. Test fit the two outer panels to the center

Arts & Crafts Desk Project Supplies

These supplies are available from Woodworker's Journal.

Stickley Pull* #26757.....$27.99
Deep Drawer Slide #32573.....$4.99**
Center Drawer Slide (pair) #34942.....$5.49
Desktop Fasteners (pack) #21650.....$3.99

**Six required.*
***Four required.*

To order your supplies, call 800-610-0883 and mention code WØ899.

panel and frame. When all of the parts fit together well, remove the screws and reassemble the top with glue and screws. Apply a couple of drops of glue to the joint between the center panel and the inverted rabbet on the outer panels. This will ensure both panels will expand and contract from the center of the desk. Finally, glue the top faux tenons (pieces 16) in place.

Assembling the Desk

Sand the subassemblies down through the grits to 220, and test fit all your joints (see **Figure 3**). Then lay out and mill the eight biscuit slots for the drawer dividers (pieces 17). Glue and clamp the two interior frames in their dadoes in the back, then glue the subassembly into the stopped grooves in the legs (don't glue the panels in place during this process). Before this glue begins to set, install the drawer dividers with glue and biscuits. Make sure everything is square as you tighten the clamps. Once the glue dries, use a Forstner bit to create round mortises in the tops of the legs (see the **Elevation Drawing**), then secure the tabletop fasteners (pieces 18) in place with screws (pieces 19).

To join the top and bottom subassemblies, start by placing the desktop on the lower desk assembly. From the underside, mark where the interior frames touch the desktop's center panel. Remove the top and drill pilot holes for screwing through the top into the interior fames, countersinking the holes from the upper face. Center the top on the desk body, then drive your screws (pieces 20) down through the center panel into your predrilled pilot holes in the interior frame's top rails (pieces 6). Finish securing the frame in place by driving screws (pieces 19) up through the tabletop fasteners into predrilled pilot holes in its bottom face, then attach the leg space shelf (piece 21) with screws (pieces 13). Take a moment to glue the drawer cleats (pieces 22) to the plywood panels inside the drawer cavity (refer to the **Elevation Drawings**).

Drill a finger hole in the top's center panel to help lift the removable leather covered panel, then cut the leather (piece 23) and its backer (piece 24) to shape and dry fit them to the top of the desk. When the fit is right, glue the leather to the backer with 3M's 77 spray adhesive.

Making the Drawers

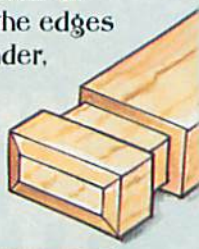
Refer to the sidebar (upper left) to mill the joinery on the sides, fronts and backs of the four deep drawers and the shallow pencil drawer (pieces 25 through 35). Assemble each box and sand smooth. Cut the drawer faces from attractive hardwood stock. Mount the drawer pulls with their bolt heads counter bored into the back of the piece for flush mounting.

Figure 3: Before final assembly, test fit the joints between premade subassemblies, such as the back subassembly and the legs.

FAUX TENONS

There are two different size faux tenons on this desk. The top frame set have larger tails and cover a set of screws. The leg set are machined with tiny tenoned tails to glue into 1/4" mortises. They're easy to make and ensure a clean attractive look.

Machine the faux tenons in three steps: Chamfer the edges of your stock on a sander, relieve the tenon tails on your table saw, and slice them free with a band saw and miter gauge.



Be sure to make each size faux tenon in sets. Use a registration block clamped to your miter gauge to ensure uniformity.

With the drawer boxes complete, install the drawer slides according to the manufacturer's instructions, then slide the drawers into their openings. Use two-sided tape to temporarily position and mark the locations of the faces, then remove the drawers and screw the faces in place. Install the remaining faux tenons (pieces 36, see above).

Apply a light walnut oil stain, topped by at least three coats of clear matte lacquer. Sand between these coats with 400 grit paper, and install the drawer pulls after the finish dries.

Then you can sit down at your new desk and bask in the glow of woodworking well done!

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Woodworker's Journal, January/February 1998

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American Woodworker,™ December 1996

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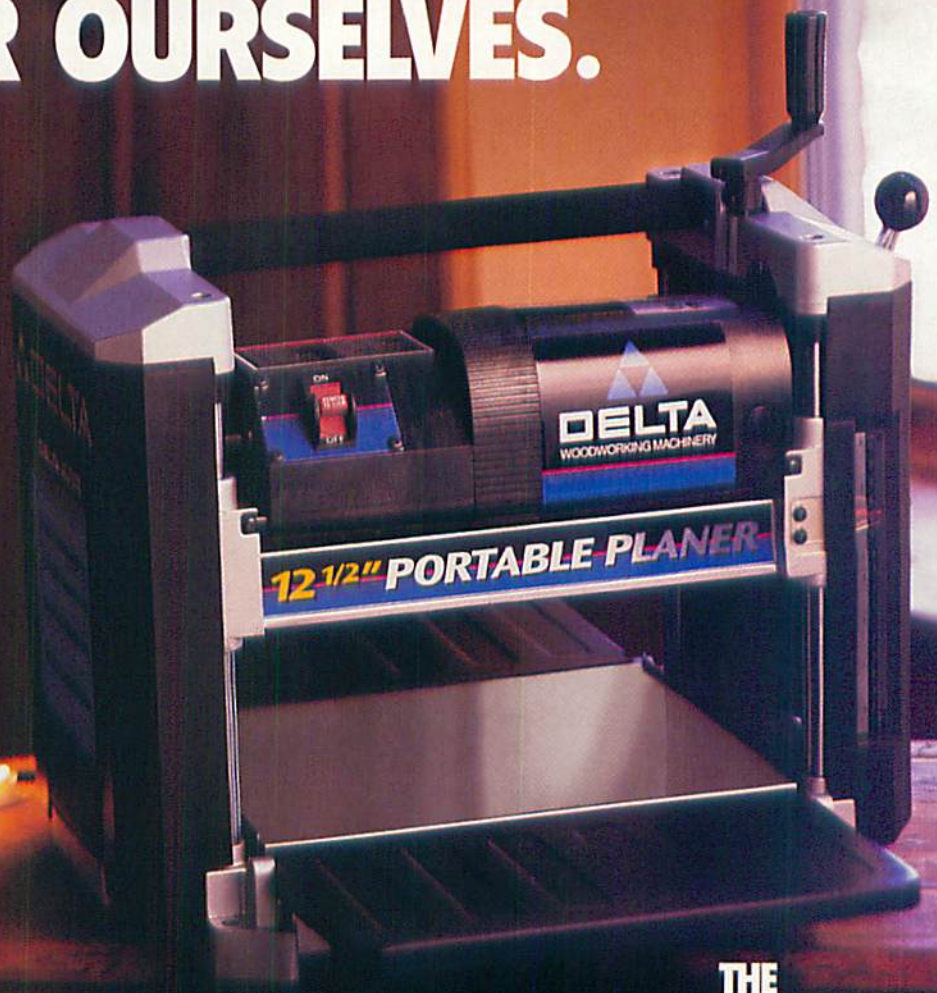

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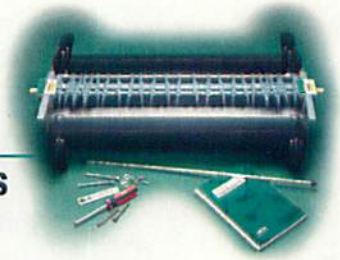
Introduction

Welcome to our first annual Resource Digest. Over the past few months, Woodworker's Journal sent out a bag full of mail to companies selling woodworking tools and related supplies. Since then, we've corresponded back and forth, requesting photos, asking "what's new?" and gathering information important to you, our readers. Here are the results of those efforts. Don't look for prices, since we expect the Digest to be a useful tool all year long. For easy follow-up, you will find phone numbers and web addresses.

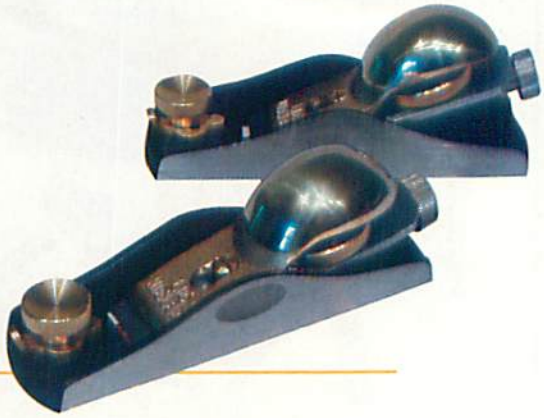
6 Woodworking Supplies

12 Stationary & Benchtop Tools



18 Workshop Accessories

22 Portable Power Tools



24 Hand Tools

26 Bits, Blades & Cutters

30 Catalogs

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Woodworking Supplies

It's the details that make the project: You'd never get anything done without glue, sandpaper, hardware and other basic supplies.

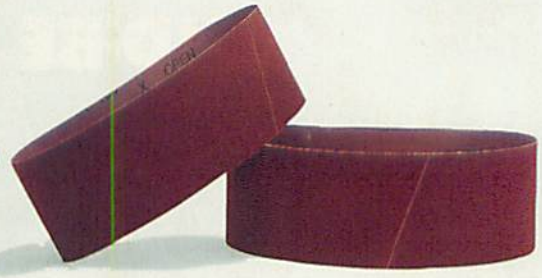
Sticky Business

The Ambel Corporation, exclusive distributor of EXCEL polyurethane glues, was the first company in America to offer an expanding liquid polyurethane adhesive. In addition to the original EXCEL ONE liquid version, Ambel is now marketing EXCEL XPRESS, a quick cure, semi-gel PU glue and EXCEL STRUCTAN, a regular cure semi-gel. Reach Ambel at **800-779-3935** or on the web at www.excelglue.com

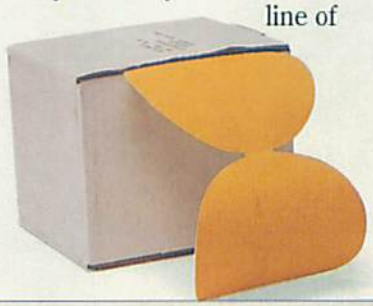
New From Elmer's

Elmer's Products, Inc. **(614-225-7060)** has rolled out two new products; ProBond Contractor's Glue; which bonds stronger and faster, and Carpenter's Wood Glue Paste; a no-run, no-slip glue for vertical surface adhesion. The company also has improved three of their standbys, ProBond Solvent Wood Filler, Squeez 'N Caulk and Spray Adhesive. Elmer's is on the web at *www.elmers.com.*

Sanding Solutions



ECON-ABRASIVES offers sandpapers and accessories to woodworkers of all sizes — from large cabinet shops to individual basement-based hobbyists. They've added a new line of supplies for the professional woodworker and the serious home shop hobbyist. Check out their catalog for the latest in belts (any size), discs, sheets, rolls and specialty sanding products. One of their latest offerings is a line of portable pneumatic sanders. You'll find everything from steel wool to spindle sleeves and sanding blocks in their catalog. Call **800-367-4101.**



Old World Hardware

Horton Brasses **(860-635-4400)** manufactures a line of authentic reproduction furniture and cabinet hardware made from brass and hand-forged iron. Knobs, pulls, hinges, casters, bed hardware and lock are always in stock. You can write away for their 56-page full-color catalog (available for $4.00) or download it from their website: *www.horton-brasses.com.*

RESTORATION THE EASY WAY

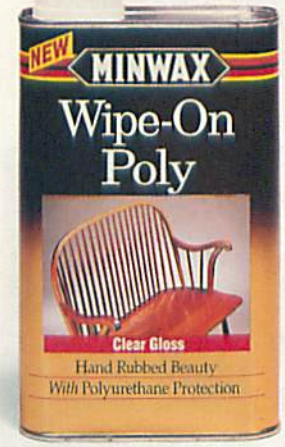
System Three Resins, Inc., providers of quality epoxies and coatings worldwide for over 20 years, is now making a line of woodworking and wood restoration products. Their Quick-Cure is "the definitive 5-minute epoxy". T-88 is a high performance, gap filling structural epoxy adhesive and Grizzly Glue is their premium, one part polyurethane glue. Rot Fix and SculpWood are a two-product wood restoration system formulated to consolidate and replace rotted, dried out or spongy wood. Call **800-333-5514** or visit *www.systemthree.com.*

Tic Toc Parts and Supplies

If you're looking to build a clock, Klockit's catalog **(800-556-2548)** is a great place to start. They've been in the business for over 25 years. Their line includes quartz and mechanical movements, clock inserts, dials, easy-to-follow plans and kits (like the Oak Manchester Kit shown above) for all skill levels. Look for them on the web at *www.klockit.com.*

The Glue that Binds Us

Franklin International **(800-669-4583)** has been an industry leader in bonding wood and wood products for over 60 years. Marketed under the Titebond brand name, the company manufactures high quality wood glues and adhesives for all types of construction or repair projects. According to Franklin, Titebond II Premium Wood Glue is the only one-part wood glue to pass ANSI Type II water-resistance testing. Their web address is *www.franklin.com.*



Finishing with an Old Friend

Minwax **(800-523-9299)** has been helping woodworkers finish up projects for almost 100 years now. Their products include stains, clear protective finishes (like their Wipe-On Poly shown at left) and wood care and repair products. Minwax says their products are easy to use and designed to "help make all the wood in your home beautiful." They are available nationwide at hardware and paint stores and DIY home centers. You can find them on the web at *www.minwax.com.*

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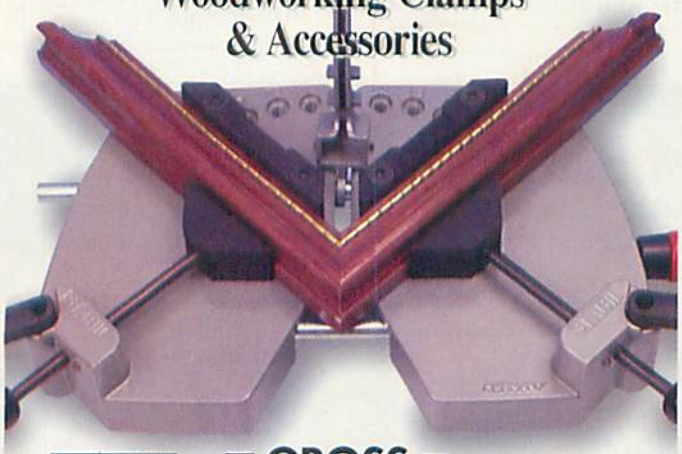

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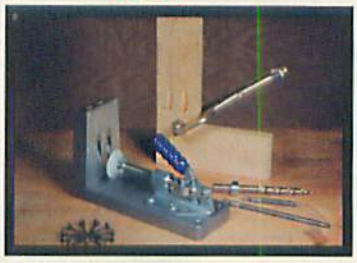

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Taming of the Screws

You'll find more screws than you ever thought existed in McFeely's Catalog. Best known for their anti-slip, square drive screws (over 750 sizes), McFeely's also stocks other fasteners and supplies. Give them a call at **800-443-7937** or visit them at *www.McFeelys.com.*

Wayne's World ...

Wayne's Woods Inc. currently stocks over 400 different pieces of antique reproduction hardware, including pulls, knobs and locks. Their hardware is available in brass, wood, nickel, wrought iron, cast iron and glass. Check them out online at *wayneswoods.com* or call **800-560-6718.**

A Deft Touch

Deft Inc. **(800-544-3338)** produces wood stains, lacquers, polyurethanes and danish oils for woodworkers. Their Clear Wood *Finish* — a quick drying, true brushing lacquer — was an industry first. A satin sheen recently became available, joining the gloss and semi-gloss sheens already on the market. For more info, visit *www.deftfinishes.com.*

A Slippery Business

Empire **(707-837-9258)** manufactures Wood Cutting Lubricant, for use on saw blades, router bits, drills, turning tools and other shop tools. The Fluoropolymer formula penetrates and bonds to the microstructure of the tooling surface. Blades, Empire says, cut cooler once they're sprayed. Empire is on the web at *www.empiremfg.com*

One Step at a Time

Olympic's **(412-434-4226)** line now includes Interior One Step Finish, (in six shades; gloss or satin), an oil based stain and polyurethane in one product. In one application, you create the durable finish you'd expect from two steps — staining and sealing. Look them up on the web at *www.olympic.com.*

Clocks Fit for a King

Emperor Clock **(800-642-0011)** offers quality hardwood clock kits, furniture kits and fully assembled clocks. Their movements are engineered in Germany. Shown here is their 84" tall Edinburgh grandfather clock. The web site is *www.emperorclock.com.*

Cabinet Shortcuts

Components Plus, a division of Vass, Inc. **(888-321-8277)** produces parts for woodworkers who would like to avoid the "grunt work" on their next set of cabinets. All carcasses are predrilled for hinges or dowels and are ready to assemble. Drawers (melamine or metal sided), adjustable shelves and flat doors (maple, knotty pine, red oak or cherry veneer; laminate or melamine) are also available.

Fine Lumber from the Valley

Bristol Valley Hardwoods (800-724-0132) has recently improved its product offerings. They now carry 30 different species of domestic and exotic hardwoods and have added 1/8" micro-lumber to their line, available in several species. Find them on the internet at *www.bristolvalley.com.*

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Stafast Products Inc. **(800-951-1159)** offers innovative wood connections for cabinetmakers and woodworkers. Their Knapp line of fasteners is fully concealed and de-mountable. The KLICK and S-KLICK fasteners are designed for simple snap-on assembly of moldings, cornices and infillings; providing a cleaner, more attractive finished product than traditional nail or screw assemblies. The SILVER, METAL, CHAMP, SUNNY, and QUICK fasteners are all quicker alternatives to traditional biscuits fasteners. They're online at *www.stafast.com.*

Make Yourself a Little Time

Canadian-based Murray Clock Craft **(800-268-3186)** has been selling clock parts since 1968. They offer a wide variety of clock case kits, movements and dials for grandfather, wall and shelf clocks. Clock plans, barometers, mechanical and quartz movements, books and wood moldings are also available. The web site is *www.murrayclock.com.*

Good News for Sanding Spouses

Klingspor Abrasives manufactures a complete line of fiber active products for all facets of woodworking, including belts, sheets, discs and rolls. Also available is a full compliment of safety glasses and goggles along with hearing and respiratory protectors. Visit *www.klingspor.com* or call **800-645-5555.**

Good Wood

EcoTimber **(888-801-0855)** sells dozens of domestic and tropical hardwoods from sustainable forestry operations in the US, Latin America, Africa and Southeast Asia. They also carry a number of under-utilized, lesser known species that work beautifully for furniture and architectural projects. Visit their interesting web site at *ecotimber.com.*

Get a Leg up on Your Table

Osborne Wood Products, Inc., **(800-849-8876)** has recently expanded their line of legs for the kitchen or dining room. The legs are 34½" tall and range from 3½" to 4" in diameter. You can check them out on the internet at *www.osbornewood.com.*

OTHER RESOURCES ...

Cupboard Distribution offers thousands of quality unfinished wood parts, turnings, and craft items at wholesale prices. Call **937-652-3338** or visit ***www.cdwood.com.***

Gilmer Wood Company has a large selection of domestic and exotic woods. You can reach them at **503-274-1271.**

Gorilla Glue bonds wood, stone, metal and more. 100% waterproof and solvent free. Call **800-966-3458** or try them at ***www.gorillaglue.com.***

Groff & Groff Lumber sells cabinet grade and exotic lumber and has some applewood in stock. Call **800-342-0001.**

MacBeath Hardwood supplies domestic and exotic hardwood, plywood, veneer and turning stock. Call **800-479-9907** or visit them online at ***www.macbeath.com.***

Red Hill Corporation sells Supergrit abrasives and a line of miniature accessories for Dremel type rotary tools. Call **800-822-4003** or visit ***www.supergrit.com.***

S. LaRose, Inc. handles clock parts, kits, dials, hands, tools, quartz and mechanical movements, and case hardware. **336-621-1936** or try them at ***www.slarose.com.***

Talarico Hardwoods sells a full line of quartersawn hardwood stock, including white and red oak, sycamore and ash. Call Sam at **610-777-0400.**

The Hardwood Store of N.C. carries a line of domestic and exotic hardwoods, including wormy, curly and bird's-eye maple; Spanish cedar and reclaimed heart pine. Call them at **888-445-7335** or find them on the web at ***www.hardwoodstore.com.***

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A Loaded Table

Features are piled high on the DW746 table saw from DeWalt. "DeWalt is committed to designing high quality, innovative tools for the woodworker," says president John Schiech. In this case, they've included a 1¾" induction motor — the only one in its class — a knee-access on/off switch and a shrouded blade which channels sawdust to a dust collection port. Each revolution of the graduated crank equals two degrees of bevel. Learn about more DeWalt tools at **800-433-9258** or *www.dewalt.com*.

A Mightier Growl

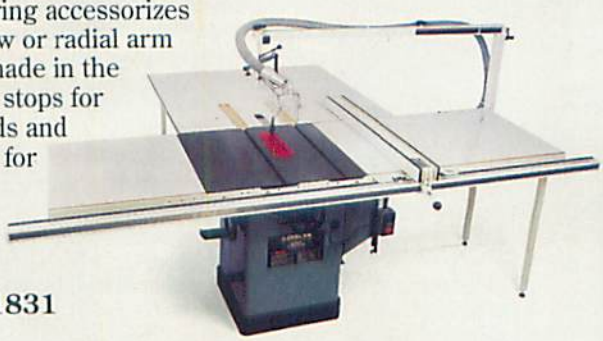
Grizzly Industrial covers a lot of territory. A major importer of wood- and metalworking tools, they offer one of the industry's largest parts departments. They've also added power to their G1021Z 15" planer. A cabinet stand encloses a 3 HP motor. Three V-belts transfer power from the motor to the planer head and ensure no slipping on even the toughest materials. For more info, visit *www.grizzlyindustrial.com* or call **800-523-4777**.

Scroll Control

Control is an issue for Dremel, whether it's in their 1680 variable speed scroll saw, an electric engraver or their world leading high speed, multipurpose rotary tools. The 1680 scroll saw's top-mounted controls; a two-way, 45° table tilt for two-way bevel cutting; and table angle detents that lock in place at 15° intervals for consistent bevel cutting are all unique to the category. At 40 pounds, it's no lightweight. Want more info? Call **800-437-3635** or visit *www.dremel.com*.

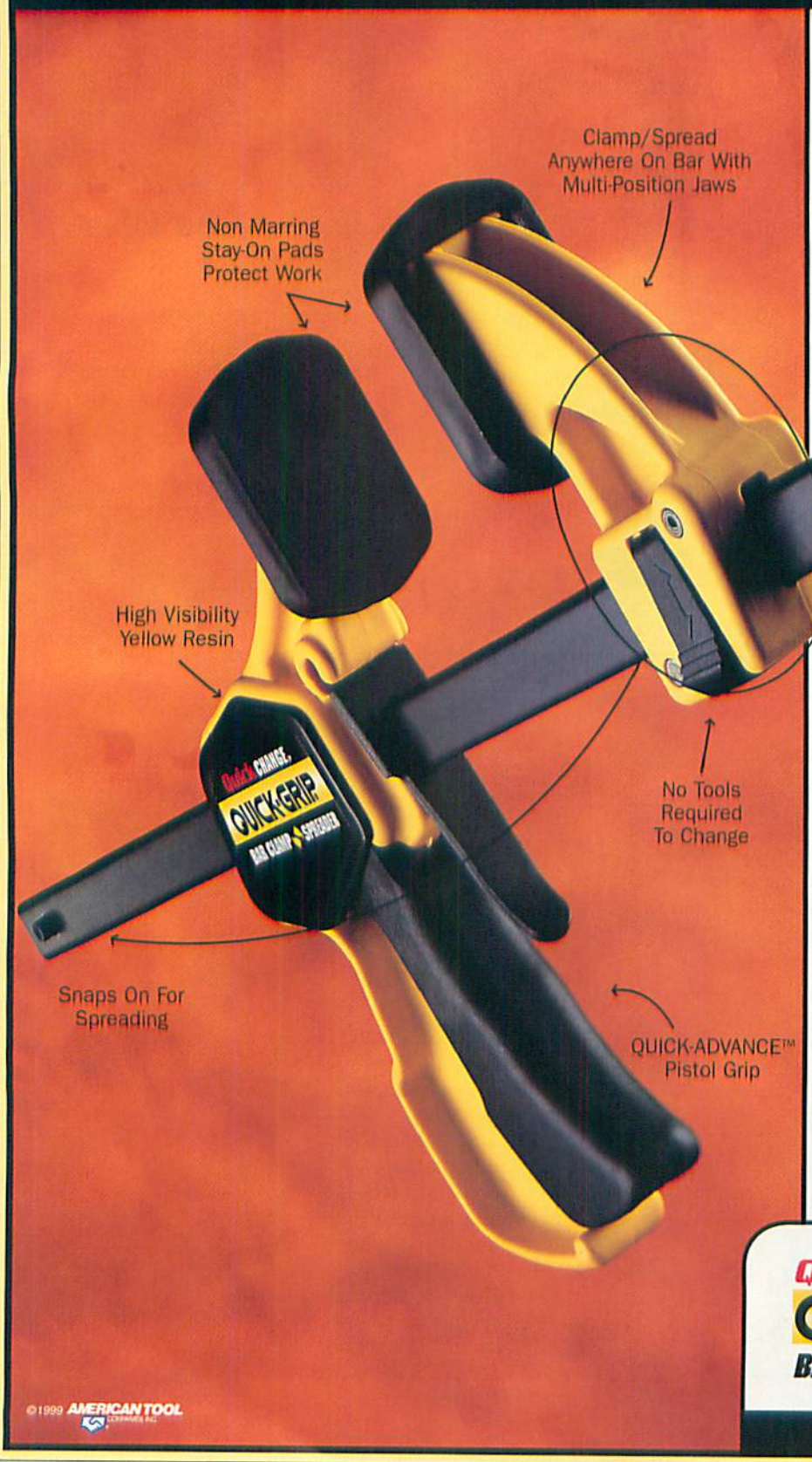
Accessories Can Make the Saw

Biesemeyer Manufacturing accessorizes your table saw, miter saw or radial arm saw with handcrafted, made in the U.S.A. extension tables, stops for cut-off operations, guards and anti-kickback spreaders for safety compliance. They offer these accessories in various combinations. Find out more at **800-782-1831** or *www.biesemeyer.com*.



Q: IS THIS OUR NEW BAR CLAMP OR IS THIS OUR NEW SPREADER?

A: YES.



The QUICK-GRIP® QUICK CHANGE™ Bar Clamp/Spreader – the new and improved clamp that easily changes to a spreader without the use of tools. Simply unsnap the multi-position jaw, slide it off, turn it around, slide it on and voilá, it's a spreader. No kidding, it's that fast. And with the QUICK-ADVANCE™ trigger, you can clamp or spread faster. Which means you can turn most any task into half the work because you hold twice the tool. So, get the clamp that's a spreader from the company that has just re-invented the bar clamp, again.

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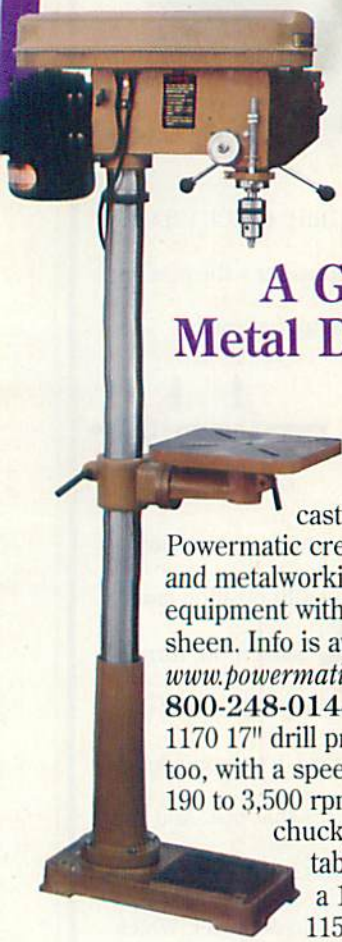
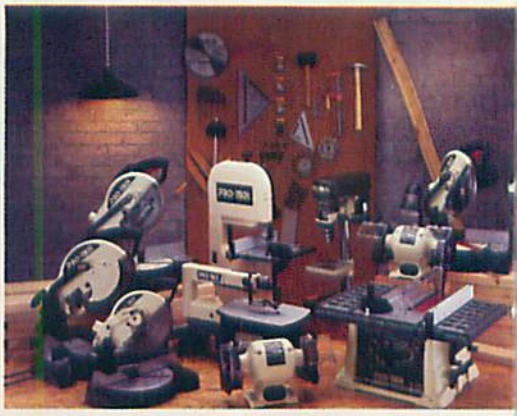


A Gold Metal Drill

Using their own foundry for castings, Powermatic creates wood- and metalworking equipment with a golden sheen. Info is available at *www.powermatic.com* or **800-248-0144**. Their 1170 17" drill press shines, too, with a speed range of 190 to 3,500 rpm, a 5/8" chuck, a 12" table and a 1 HP, 115 volts motor.

Mama Mia! Tool

Italy is the homeland of the LT13 band saw from Laguna Tools, importers of fine European woodworking machines like band saws, table saws, dust collectors, lathes, shapers and workbenches. The LT13 gives you 6½" of resaw capacity and can accommodate up to a 3/4" blade. The table and fly wheels are made from heavy-duty cast iron and the machine is powered by a European 1½HP motor. For more information, visit Laguna on the web: *lagunatools.com* or call them **800-234-1976**.



Glad to Be Benched

Benchtop power tools are the mainstay of ProTech, founded in 1985 with an emphasis on value. Incorporating innovative design and affordability, the company offers one of the most comprehensive lines in the industry for both hobbyists and professional contractors. If you want further information about their scroll saws, miter saws and more — including authorized Pro-Tech service centers — give them a call at **800-888-6603**.

Next Century's Tools

Delta International Machinery is ready for the next century with a complete line of woodworking machinery and accessories, including the Series 2000 10" contractor's saws. At **800-438-2486** or *www.deltawoodworking.com*, you can find out all about the saws' 1½HP induction motor that delivers extra power and speed for cuts that can reach a maximum of 3⅛" at 90° or 2⅛" at 45°. Integral T-slot table grooves prevent the patented Auto-Set® miter gauge from falling during wide cut-off operations, and adjustable stops at the 90° and 45° positions allow accurate straight and angle cutting. A choice of fences is available.

More Shapely

For extra-large projects, JET's homeshop shaper has a 22⅜" x 18⅛" extra-large cast-iron work surface. On their rather large plate, JET Equipment & Tools has distribution of a complete line of quality woodworking tools, backed with an extensive parts and service network. One part of that line — the homeshop shaper — has a 1½ HP single-phase, fan-cooled motor; two reverse spindle speeds; and left and right fences with no-clearance and micro-adjustment capabilities. For more info, call **800-274-6848** or visit *www.jettools.com*.

Giant Selection

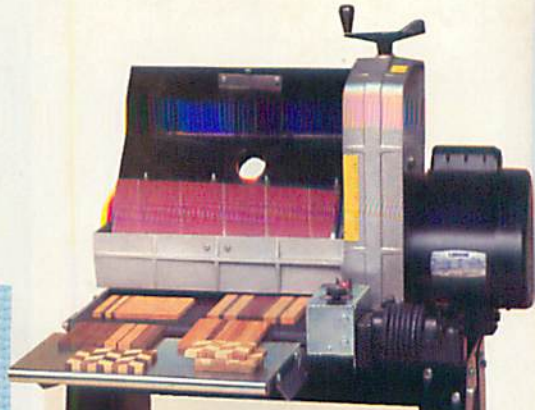
Hitachi Power Tools offers a giant selection of electric, cordless and pneumatic precision built tools and accessories. Among those offerings is the C10FCD 10" dual bevel compound miter saw. A 13 amp, 3,700 rpm motor powers 45° left and right bevels and cuts of 3⅞" to 5⅝" wide and 15/16" to 2¾" deep. More info? **800-706-7337** or *www.hitachi.com.*

In General...

... General Manufacturing Company makes some pretty cool tools. For the past 50 years, the Canadian company has been offering a line of stationary power tools, including saws, sanders, drills, lathes, dust collection and more. Call **514-326-1161** or visit *www.general.ca* for more info.

It Cuts; It Drills

All-in-one is the concept at Shopsmith, a manufacturer of multipurpose tools combining the functions of table saws, lathes, drill presses, horizontal boring machines and disc sanders. You can find out about them at **800-543-7586** or *www.shopsmith.com.*



Built on Sand(ers)

For a company built on wide belt surface sanders, the Performax 16-32 Plus drum sander is an addition which adds 32" wide sanding capacity to benchtops. A continuous duty motor and a "no-give" power feed conveyor add lasting sturdiness for sanding stock as short as 2¼" and as thin as 1/16" to within .010 uniform thickness. For info, call **800-334-4910** or visit *www.PerformaxProducts.com.*

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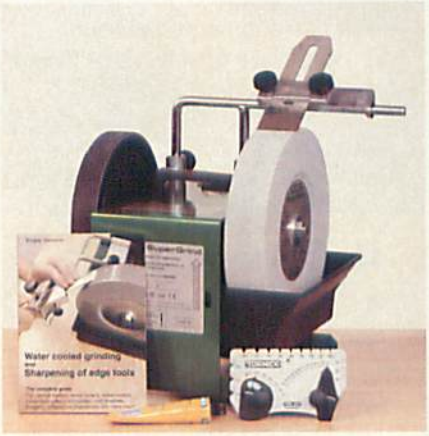


Stay Sharp

Edge tool sharpening is fast and easy with a Tormek water-cooled machine. The SuperGrind 2000 model comes with a straight-edge jig for planes, chisels and spoke shaves and a Pro AngleMaster to set any edge angle from 15° to 75° with 1° accuracy. A 115 volt motor powers an aluminum oxide grindstone at 90 rpm. They also offer a variety of jigs. Call **800-586-7635**.

OTHER RESOURCES ...

Excalibur by Sommerville Design manufactures precision table saw accessories and a scroll saw. Call **800-357-4118** or ***www.excalbysommerville.com***

Haddon Tools offers a lumbermaker and a wood joiner at **888-705-1911** or ***www.haddontools.com.***

Lobo Machinery Corp. carries a line of woodworking equipment that includes a table saw, molder, router and more. Call **562-949-3747** or visit them on the web at ***www.lobomachine.com.***

Original Saw Company manufactures 15 models of radial arm saws. Call **800-733-4063** or visit ***www.originalsaw.com.***

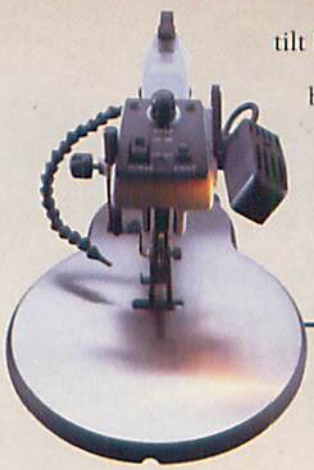
Woodmaster Tools offers drum sanders and a line of planer/molders that convert to gang rip saws or drum sanders. Call **800-821-6651** or visit their web site: ***www.woodmastertools.com.***

Growth Planes

Youngsters always have room to grow — and Ridgid®, the new tool line an old manufacturer introduced in 1998, is making some additions to its stationary and benchtop line of power tools. One of the tools they've sprouted is a 13" thickness planer. A 15 amp motor and 13" x 6" of cutting capacity produce 66 cuts per inch on all types of stock. Eight depth stops range from 1/8" to 1¾", two cutting edges per knife allow twice as much cutting before easy replacement with a patent-pending tool. To find out more about Ridgid or their other tools, you can call them, **800-474-3443,** or visit them online: *www.ridgidwoodworking.com.*

Easy to turn on. Hard to turn off.

When we designed our new scroll saw, we gave it the features you wanted most. (We know, because we asked you.) We put the power switch and variable speed controls where they made sense, up top. We designed the table to tilt both ways, instead of just one way. And the table "clicks in" every 15 degrees to make bevel cutting easy and sure. Of course, we also included handy features like a tool-less blade change, an adjustable blower and an integrated light. And we put it all on a heavy cast-iron base for solid performance. All of which makes it one of the easiest scroll saws to have fun with, right out of the box. In fact, the only hard part is turning it off.



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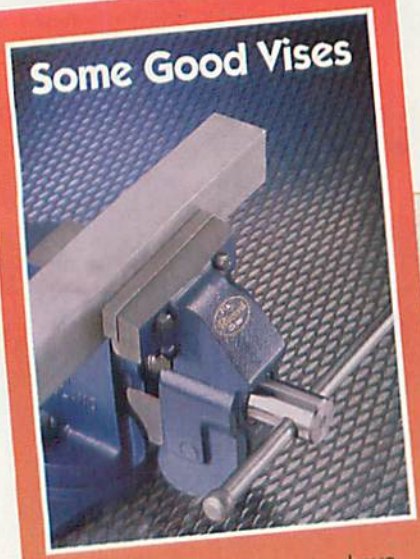
Workshop Accessories

Once, you thought of them as extras. Now, you can't imagine your shop without them. Jigs, clamps and other accessories complete your workshop.

Hoold It!

Holding your work down with their clamps and clamping systems is De-Sta-Co Industries' mission. They offer 500 styles of toggle clamps and systems, ranging from manual hold-down, latch, squeeze and straight-line actions to power hydraulic and pneumatic systems. Heavy-duty bar and "C" clamps or lightweight composite clamps are also in their line. If all those don't help, they'll manufacture a clamp to fit your needs. You can get in touch with them at **248-594-5600** or *www.destaco. com.*

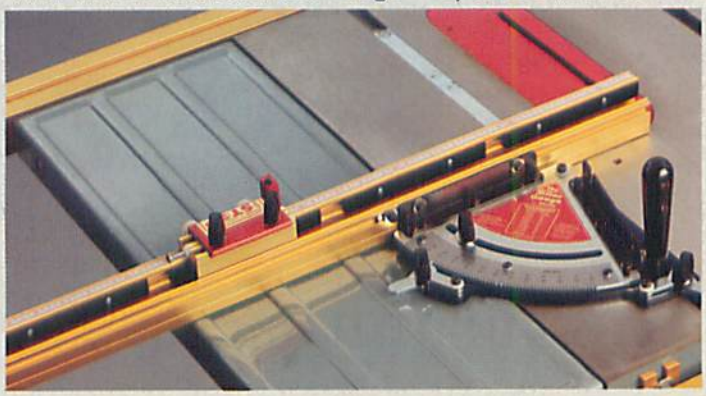
Some Good Vises



American Tool Companies have introduced RECORD® vises to accompany their line of locking tools, clamping products, boring and cutting tools, bits and saws. The V150B RECORD vise comes as a portable model which can be permanently attached to a bench or moved around the shop. It's available in widths of six or seven inches. Made in Sheffield, England, RECORD vises feature robust castings and smooth sliding machined surfaces. On some models, a quick-release trigger allows the jaws to be opened and closed rapidly and easily without using the main screw. Call **847-478-1090** or visit www.americantool.com.

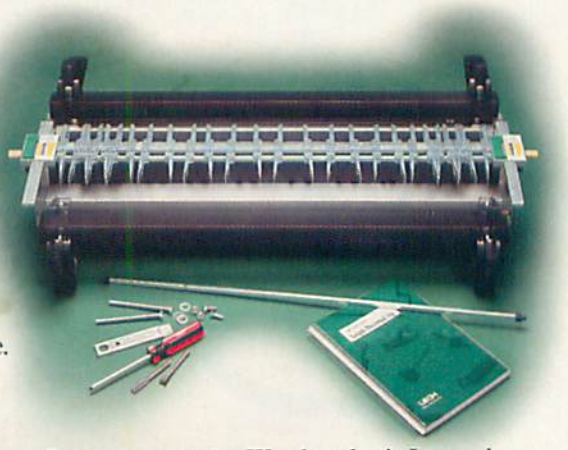
INCRA Jigs "Taylored" to Cuts

Taylor Design Group is known for jigs, including the INCRA Jig™ fence systems which deliver accuracy and repeatability to table saws, router tables and more. Their newest item, the Miter Gauge — by INCRA, transfers those benefits to miter cuts on the table saw or router table. The miter cuts every 1/2° on both sides of the blade. Call them at **972-418-4811** or visit them online at *www.incra.com.*



Jig Makes Dovetails Fly

Leigh Industries offers router joinery systems and vacuum adjustments — including the D4 Dovetail Jig — and more. The D4 routs variable spaced dovetails up to 1¼" thick and half-blind dovetails up to 1½" thick. Both of these, and up to 1½" thick sliding dovetails, can be cut in boards up to 24" wide. Call **800-663-8932** or visit *www.leighjigs.com* for more.



Pockets in Your Holes

Kreg Tool's L-shaped pocket hole jig can fasten to a workbench, where its close tolerance drill guides eliminate tearout. At *www.kregtool.com* or **800-447-8638**, you can find more info on Kreg and this jig, whose 3/8" guide diameter can handle material 1/2" to 1½" thick.

Lock 'Em Up

CMT has manufactured and distributed quality router bits, saw blades, boring bits and woodworking accessories for 35 years. Now, they've added the Blade-Loc™ saw blade-changing tool. Designed to hold the blade of a 10" saw during blade changes, it protects the blade's coating and teeth and the user's hands. Made in the U.S.A. from the toughest plastic available, Blade-Loc is a tool meant to take abuse, and it's easy to use. For more information, call CMT at **888-268-2487** or visit *www.cmtusa.com.*

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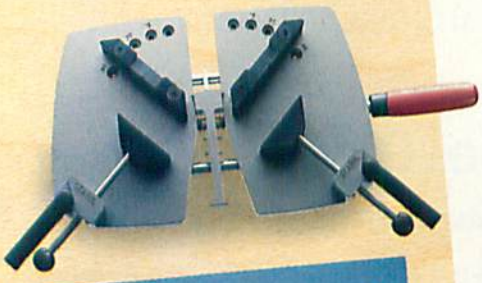
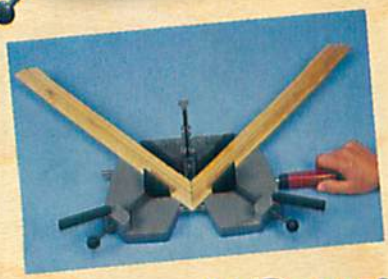
Create a Vacuum in Your Shop

The Mini Mach™ Portable Vacuum Clamping Bed is just one of Carter Products Company's tools. They also make band saw guides, wheels and tires, laser items, a saw blade deviation detector and more. The Mini Mach's claim to fame is its ability to hold your workpiece down through the strength of suction created by your shop vacuum. It can hold workpieces from 4" x 4" to 48" x 48". Call **616-451-2928** or visit *www.carterproducts.com.*





Clamp It Down

Gross Stabil Corp. has been manufacturing its German-made clamps since 1885. They know clamps, with current offerings including sliding arm, corner, miter and other specialty clamps — including the Multi-Angle Clamp MGS 100. Designed to accommodate angles of 0° to 120° in 15° increments, the MGS 100 holds round or oddly shaped items. More info? Call **800-671-0838.**

Easy Adjustments

The Adjustable Clamp Company, as its name suggests, makes traditional clamps and clamping accessories — but they also offer innovative lines of bench vises, miter boxes and miter saws. They offer these products under the brand names Jorgensen®, Pony® and Adjustable®. For more info on their vises, steel spindle hand screws and more, give them a call at **312-666-0640.**

OTHER RESOURCES ...

Airware America sells woodworking safety products such as a dust-filtering visor. Call them at **800-328-1792** or visit them at ***www.mid-web.com/airware.***

American Steel Span can provide you with a custom steel building to use as a shop or storage. Call them at **888-667-8002** or visit their web site: ***www.americansteelspan.com.***

Diamond Machining Technology manufactures a full line of diamond sharpening tools. For more info, call **800-666-4368** or visit their web site at ***www.dmtsharp.com.***

Jointech is a manufacturer of high quality router table and table saw fence systems. Call **800-619-1288** or visit ***www.jointech.com.***

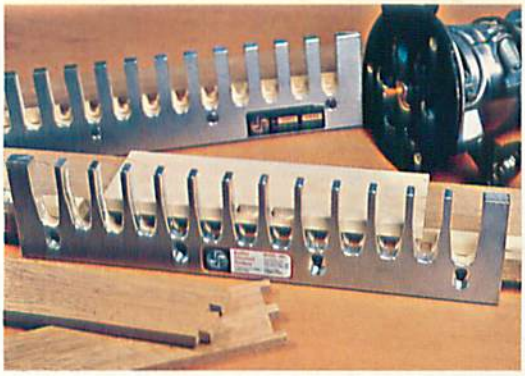
Legacy Woodworking Machinery provides a choice of ornamental mills. Call **800-279-4570** or visit them at ***www.legacywoodworking.com.***

Nyle Corporation is a leader in dehumidification drying. To find out more about their lumber-drying kilns, it's **800-777-6953** or ***www.nyle.com.***

Safranek Enterprises Inc. produces Her-Saf panel routers, kerfing attachments and related equipment. Call **800-553-9344** or visit ***www.hersaf.com.***

Wetzler Clamp Company, a division of Treacy Industries, makes and sells heavy-duty clamps with malleable iron casting and high carbon spring steel. For more info, call them at **800-451-1852** or visit ***www.wetzler.com.***

Woodmark's downdraft tables are also complete air filtration systems. Call them at **800-845-4400.**

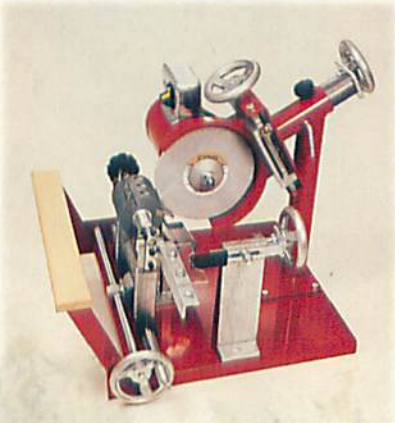


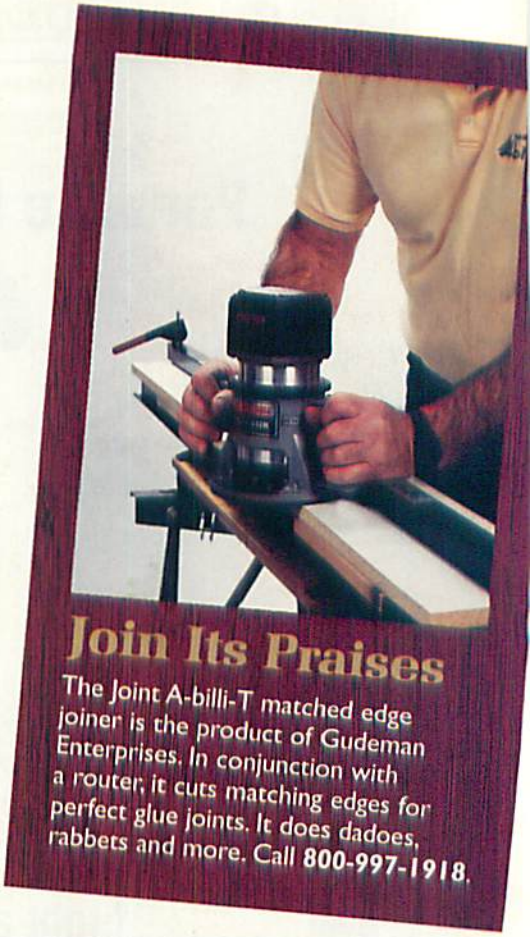
Nestle Your Dovetails

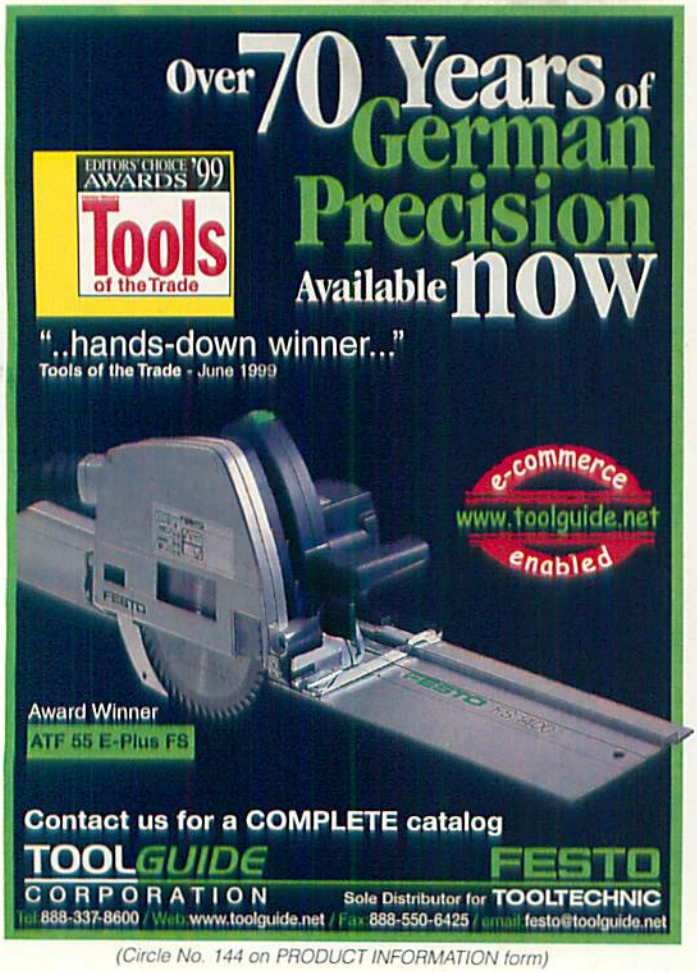
For over 24 years, Keller & Company has manufactured the Keller Dovetail Jig: a quick, efficient and accurate method for creating dovetail joints. Call **800-995-2456**.

Better Profile

A variety of sharpening machines and accessories are available through Viel. The Canadian company's AF-5 profile grinder grinds knives directly in the cutterhead. It has a capacity of 5½" diameter and 6" length and a grinding wheel which tilts 5° to each side for lateral clearance. A 1/3 HP motor powers the 54-grit wheel. For more info, call them at **800-915-2601**.







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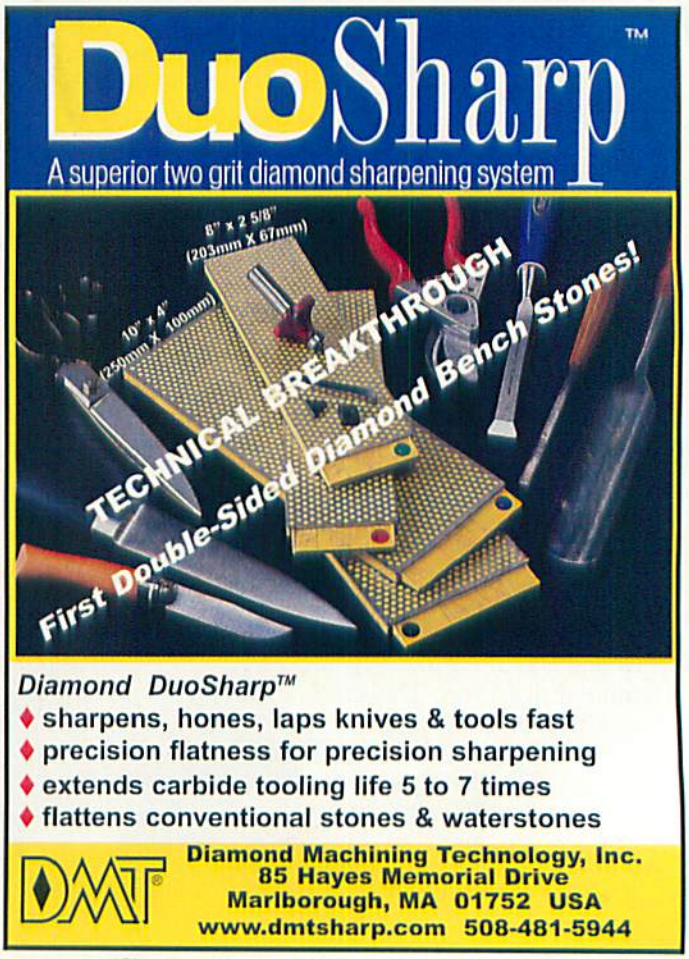

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Portable Power Tools

What's so great about portable power tools? You can take them with you — whether it's from one room to another or across town to your dad's shop.

Mark this Name

Festo's German electric power tools, now sold in the U.S. through Tooltechnic, bear the mark of quality. Among these tools is the RO 150 rotary sander. At its full power of 500 watts, the RO 150 handles 150 different materials. Built-in dust extraction and speeds up to 560 rpm and 10,000 strokes per minute are also featured. Call **888-337-8600** or visit *www.toolguide.com.*

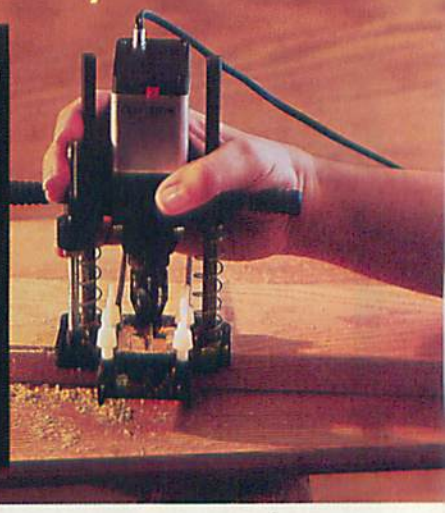
Shockingly Big

Black & Decker, the world's largest producer of electric power tools, makes and markets power tools and hardware. They're at ***800-544-6986*** *or* www.blackanddecker.com.

Light and Airy

Airy Sales Corp. manufactures pneumatic nailers and staplers which use 18 gauge brads or staplers. They offer their lightweight tools, with easy depth adjustment, separately or in kits — which also include the brads and staples. For info, call **888-835-2479** or visit *www.airy.com.*

Big, Small: They Do It All



It's possible to equip a shop completely with Craftsman tools, from power tools to tool storage. Their new 6½" plunge router doesn't take up much room, either. Part of a 75-piece set, the router operates up to 18,500 rpm. 800-377-7414 or go to World Wide Web (www) site *sears.com/craftsman.*

Packing In Some Power

Ryobi has experience with a variety of tools, from power tools to lawn and garden equipment, and they've packed this 18-volt kit with two of them: a 5½" cordless circular saw and a 1/2" cordless center-handle drill /driver. The saw has a 3,800 rpm motor and provides 1 9/16" depth of cut; the drill/driver has a range of 0 - 1,350 rpm. For more info, visit *www.ryobi.com* or call **800-525-2579**.

Powerful Performance

Tossing off a heavy-duty portable planer is nothing for DeWalt, the manufacturer and marketer of high performance industrial power tools and accessories. So it's no surprise that, at 5.2 amps, the DW689K has the power to plane the hardest woods. It offers a choice of blades and a 3/16" depth of cut. DeWalt is at **800-433-9258** and on the web at *www.dewalt.com.*

Drill It In: Good Stuff

Air compressors, paint sprayers, nailers and generators are all part of Campbell Hausfeld's product line. The PL2545 3/8" keyless chuck drill and the SM250F99 1/2" crown stapler kit are just two examples for the company at **800-543-8622** or *www.campbellhausfeld.com*.

The 2,100 rpm drill reverses itself quickly through forward and reverse levers. A screened filter air inlet keeps dirt and debris out, while a handle exhaust directs air away from the work area.

The stapler drives most brand-name 1/2" crown, 3/8" to 1" length 20-gauge staples. Its features include sequential trigger, top exhaust, and a clear magazine.

Joining the Line

Freud's line of power tools includes jig saws, miter saws, plunge routers and biscuit joiners, like the JS102. A three-way angle plate for 90°, inside 45° and outside 45° cuts and a precision machined variable fence are new aspects to the joiner. Helical gears make its operation quieter, and a rearward activated on/off switch makes it safer. Positive detents are at 0°, 45° and 90° angles, and blade changing is easy on this tool. To find out more about freud's power tools, hand tools, and blades, call **800-472-7307**.

Crown Tools

Porter-Cable manufactures portable electric, cordless and pneumatic power tools and accessories — like the NS150A air crown stapler. The 2.6 pound tool accepts 1/4" narrow crown staples between 1/2" to 1½" and has a side anti-jam release. For more info, call **800-487-8665** or visit *www.Porter-cable.com*.

A Contract for Quality

Milwaukee Electric Tool Corporation has manufactured electric tools and accessories for 75 years. Their newest offerings include a line of 18-volt contractor cordless tools like the Sawzall, which can cut up to 60 2x4s on a single charge, and the 1/2" driver/drill that develops 400 inch-pounds of maximum torque. To find out more about Milwaukee, call **800-732-4578** or visit them at *www.mil-electric-tool.com*.

OTHER RESOURCES ...

Arrow Fastener has added a nailer and brad nails to its line of staplers, staples, rivet tools and more. Visit ***www.arrow-fastener.com.***

Dremel's rotary tool is their signature product; they also make attachments and saw blades. Call **800-437-3635** or visit ***www.dremel.com.***

Panasonic Power Tool Dept. offers electric tools like drills, saws and more. They're at **800-338-0552** or ***www.cordlesstools.com/Panasonic.***

Paragraphics Corporation has created an engraving tool through modifying a dentist's drill. Call them at **800-624-7415** or visit them at ***www.paragraphicscorp.com.***

Senco Fastening Systems' nailers and staplers are sold through AccuSet® at **888-222-8144** or ***www.accuset.com.***

Wood-Mizer is the world's largest manufacturer of portable band sawmills. They're at **800-553-0219**, or ***www.woodmizer.com.***

Better Bosch

The exclusive electronic feedback circuitry in Bosch's 1618EVS fixed-base router, with its 12 amp 2 HP motor and 8,000 -2,500 rpm range, is just one example of the offerings from this manufacturer of electric power tools and accessories. To find out about more Bosch tools, call **877-267-2499** or visit them at *www.boschtools.com*.

Hand Tools

They feel just right as you stroke the grooves and heft their weights. Hand tools are the sensual side of woodworking.

Stanley's MaxGrip™ self-adjusting pliers combine an aggressive grip with an extremely comfortable handle. You can find more Stanley tools, hardware and fastening systems at **800-782-6539** or *www.stanleyworks.com.*

Flying planes

Planes and related items from Lie-Nielsen make quick work of your planing jobs. Their Adjustable Mouth Block Planes adjust from ample to very fine. The durable Ductile iron bodies are surface ground, and the blades are 1⅜" wide by 1/8" thick. Learn more at **800-327-2520** or on the web at *www.lie-nielsen.com.*

Starrett attractions

L.S. Starrett has been making quality tools for nearly 120 years — giving them a leading role in the industry. Their products include a vast array of precision tools, levels, measures and more. More info? 978-249-5330 or *www.starrett.com.*

Measuring up

For any job that requires dividing a measured distance — from laying out floors to hanging pictures — the patented CenterPoint® line of measuring tools from Baklund-Hellar rules. They're available in two sizes, in flat rules and in metric. www.center-point.com is their web site; or call ***800-540-6604.***

Into the woods ...

The avid woodworker, particularly one who appreciates fine tools, will love the Robert Larson Company's 3,000 hand tools, such as these bevel-edged "Two Cherries" chisels. Crafted of the highest quality German steel, they're available in 1/8" to 2" sizes. For more information, call **800-356-2195** or visit *www.rlarson.com.*

Hop to it!

If you're looking for hard-to-find hand tools, check out the Frog Tool Company — purveyors of carving and cabinetmaking tools, finishing materials, accessories and more. Call them at **815-288-3811.**

OTHER RESOURCES ...

David Warren Direct
is the U.S. distributor for a line of cabinetmakers' tools for professionals imported from E.C. Emmerich (Germany). Find out about the Primus line and planes, saws, workbenches and accessories at **800-724-7758.**

Robert Sorby Tools
has been making specialist turning, carving and woodworking tools in England for over 200 years. To find out more you can visit their web site: ***www.robert-sorby.co.uk.***

The St. James Bay Tool Co.
manufactures original designs inspired by English tools of the 1880s and '90s, in particular Norris' planes. Call **800-574-2589** to learn more about their fine line of brass and ebony tools.

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Bits, Blades & Cutters

Here's where we all meet the wood. Sharp bits and blades are often all that separate the wood butcher from the woodworker.

Jesada's Kitchen System

Jesada Tools **(800-531-5559)** has introduced their Millennium Kitchen Systems; complete sets of carbide insert cutters designed to cut every door and drawer joint in your next kitchen. Shown below is their reversible glue joint cutter. Check out the full line at their web site: *http://jesada.com.*

CMT Goes Small

CMT USA **(888-268-2487)** and its parent, CMT Utensili of Italy, have manufactured and distributed router bits, saw blades, boring bits and accessories for over 35 years. They offer a full line of orange Teflon® coated router bits and an expanded line of Teflon coated saw blades, which includes triple-chip and multipurpose blades as well as nonferrous metal cutting blades. One of their most recent offerings is the Sommerfeld Junior Raised Panel and Rail & Stile Set, shown above. The set, says CMT, brings the style, detail, features and sturdy construction advantages of conventional raised panels to a uniquely smaller scale. *www.cmtusa.com*

Smooth as a Baby's Bottom

Ridge Carbide Tool Corp. **(800-443-0992)** says their Northwoods Dado-Master provides tear-free, perfectly flat-bottomed grooves and dadoes on all hardwoods and softwoods. Blades are available in 6", 8" and 10" diameters. Their TS2000 combo blade rips and crosscuts as "smooth as a baby's bottom," they say, and features carbide teeth ground to 600 grit micro finish. Reach them on the web through *www.catalogcity.com.*

Forrest Through the Trees

The teeth on the THIN-KERF Woodworker II are made by combining the hardness of C-4 carbide with the low breaking point of C-2 carbide. Forrest Manufacturing Company **(800-733-7111)** says the blade has an astonishing run-out of only .001". Forrest also offers their Dado-King (6 - 12") and a line of blade stiffeners (4 - 6") and sharpens all makes of carbide blades in two to four days.

Thin Red Line

freud **(800-472-7307)** manufactures industrial carbide saw blades for table saws, miter boxes and radial arm saws. Their thin kerf line is made of 40-42 Rc steel with carbide teeth. These thin kerfs, 28% thinner than a standard blade, are produced by a computer-controlled laser and feature strategically placed expansion slots. The body of the blade is guaranteed to remain true up to a temperature of 475°.

SystiMatic's New Bandit Blades

SystiMatic is now offering their Bandit Sawblades with TFE Red coating, originally developed to cut friction on aircraft. The company's saw blades feature "Edgelast" carbide tips, which, the company contends, will "out sharpen" other coated blades up to seven times without losing performance. The blades are available in a variety of designs. Call SystiMatic at ***800-426-0000.***

Olson Saw Co.

Olson has been manufacturing blades since 1918. They offer a line of band saw blades, mini hacksaw blades, coping saw blades and frames and a wide variety of precision ground scroll saw blades. You can reach them at 800-272-2885.

Disposable Knives

Amana Tool **(800-445-0077)** offers a full line of router bits, like the piloted Roman ogee bit shown above. One of their latest offerings is the Economy Insert Flush Trim Bit. The design features small, two-sided disposable carbide knives. According to Amana, it's the ideal bit for routers and hand-held laminate trimmers with 1/4" shanks. The design allows the company to manufacture their insert bit for about the same cost as a regular brazed bit. They're on the web at *www.amanatool.com.*

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Durability Challenge

Vermont American Tool Company **(call 800-742-5069)** has recently introduced their Titanium 10x carbide blade (shown above, right), with 24 "razor sharp teeth." Using a unique and proprietary industrial-grade titanium and boron carbide formulation, the company says they have answered the durability challenge. They're on the web at: *www.vermontamerican.com*

Woodline Arizona

*Woodline, **(800-472-6950)** which offers a complete line of industrial quality carbide tipped router bits and shaper cutters, recently introduced a set of router bits and shaper cutters that will cut both 1⅜" and 1¾" entry doors. These economically priced bits, they say, make it possible to work on projects which normally require more expensive tooling.*

OTHER RESOURCES ...

International Carbide & Engineering manufactures nail cutting and standard carbine-tipped circular saw blades. They also sell a variety of saw sharpening supplies. Call **804-568-3311** or visit them at ***ice.va.com***

Kubor Machine Company USA manufactures carbide saw blades, router bits and shaper cutters. Reach them at **508-850-9437**.

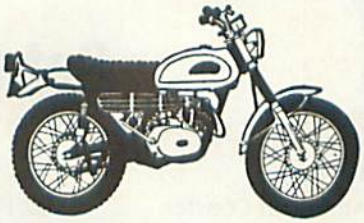
Onsrud Cutter is a cutting tool manufacturer. To check out their complete line, call **800-234-1560** or reach them at ***www.onsrud.com***

Router Bits on the Web offers a wide assortment of router bits, exclusively on the web. Check out their site at ***www.routerbits.com***

Suffolk Machinery makes silicon steel band saw blades in Sweden and sells them worldwide. Sizes range from 1/16" through 2" wide. Call them at **800-234-7297** or find them on the web at ***www.suffolkmachine.com***

Speed Chuck

General Tools **(212-431-6100)** is a 25-year-old manufacturer of "made in the USA" woodworking and specialty tools. Their new Starter Set includes 4 twist drill bits, a cross-point #2 screwdriver bit and the Speed-Chuck™. All of their 1/4" Hex Tails are designed to prevent wobble. The manufacturing process is so exacting, says General, that the bits meet or exceed standards for the U.S. Specifications for Aviation Tools.



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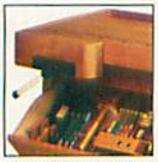

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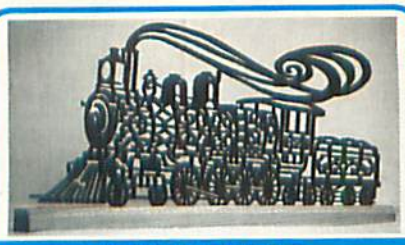

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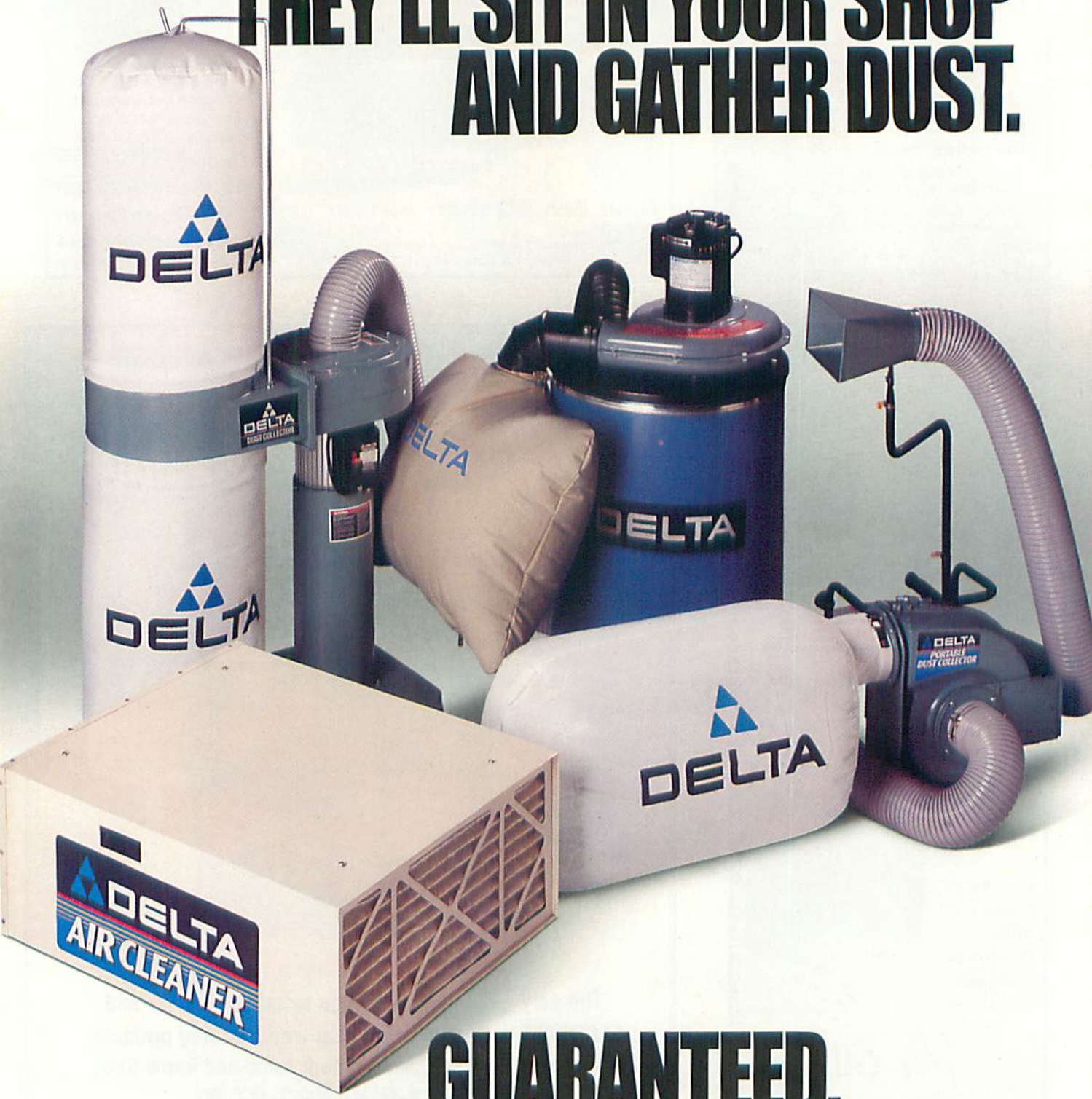

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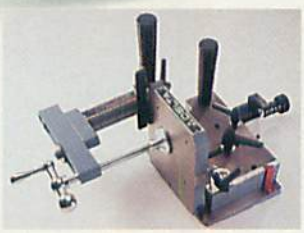

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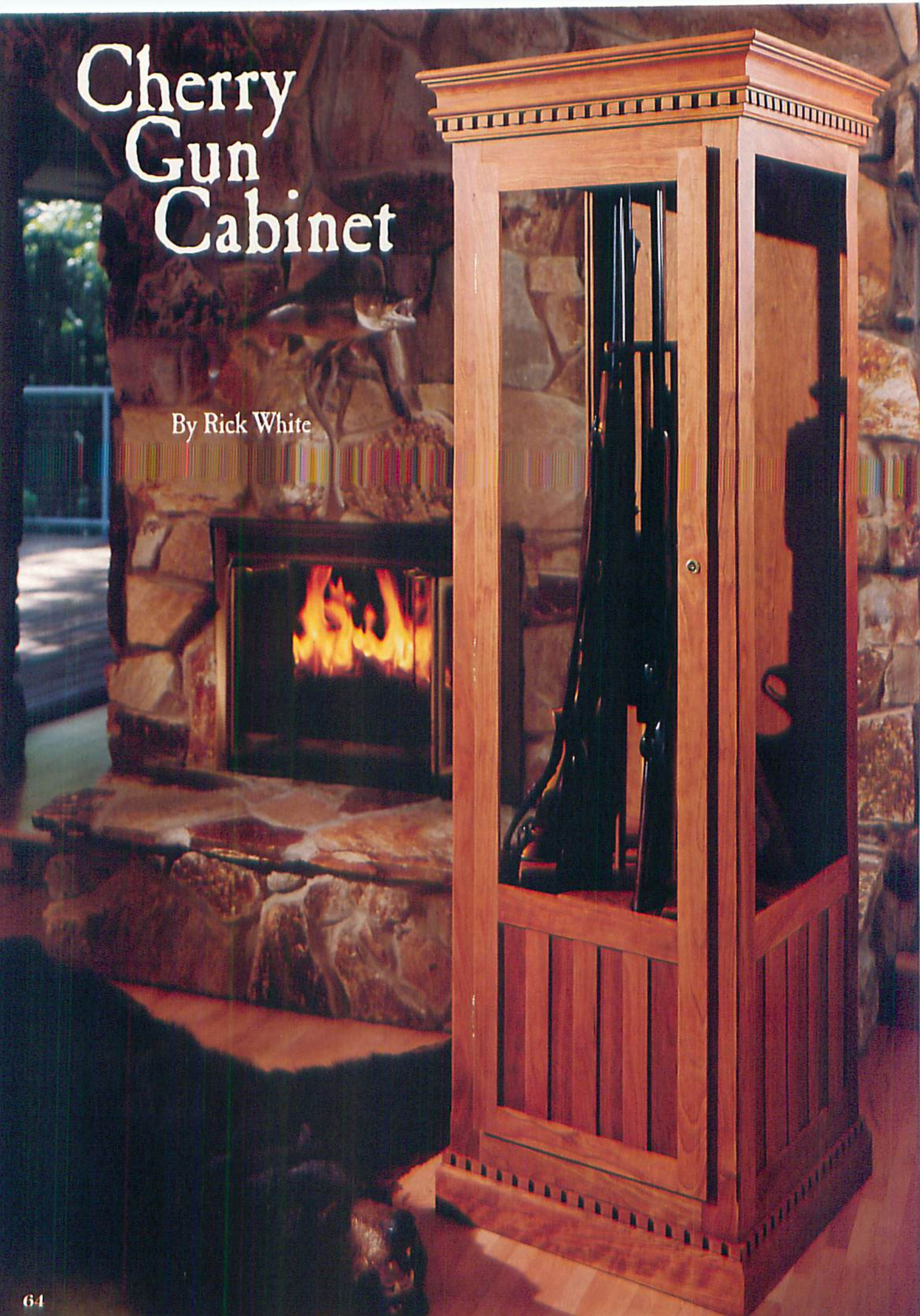
Cherry Gun Cabinet

By Rick White



Outdoor hobbies are important to me; in fact, fishing and hunting are a way of life for many of us here in the north country, and in most other areas of the country as well. That would explain why one of the most common project requests we get is for a gun cabinet: a way to safely store firearms, yet display them for the craftsmanship they embody. So I took on the challenge to create a display case for my guns with a circular twist, after all ... I like talking about hunting and fishing almost as much as doing them. And this gun cabinet gives me an easy way to start the conversation!

Stiles, Rails and Sides

When you first look at the gun cabinet, your eye is drawn to its molding and decorative shapes, but the nuts and bolts of this cabinet are its stile and rail construction. I used both cherry lumber and veneered plywood with good results.

Start by cutting all the corner stiles (pieces 1 and 2) to the dimensions listed in the **Material List** on the next page. Move to your router table and, with a 3/4" straight bit chucked into your router, machine rabbets down the length of the wide stiles. Change the router bit over to a 1/4" straight bit to plow 1/2" deep grooves into the edges of the corner stiles. These grooves are full length on six stiles and stopped on the front two, as shown on the **Exploded View**. (If possible, leave this set-up in place, as you will be using it again soon.)

Next, cut the top and bottom rails (pieces 3) from 3/4" hardwood plywood and the middle and lower rails (pieces 4 and 5) from solid stock. All of these rails are identical in length, but vary in width. A real time-saving step is to cut all the rails to length and width, and then machine the 1/4" wide by 1/2" long full width tenons onto their ends.

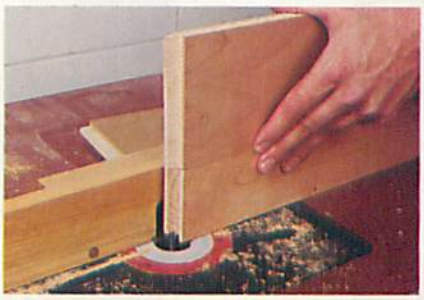
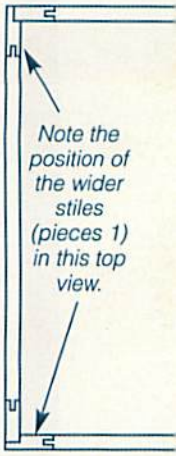


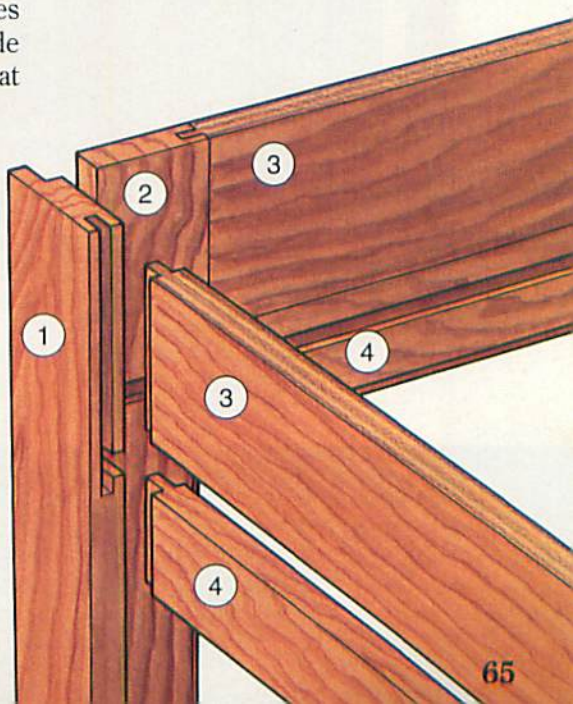
Figure 1: Plow grooves into the appropriate edges of the rails and glued-up rails. Take a few passes to achieve the proper depth.

Test the tenons' fit in the grooves you created earlier. The cabinet has three built-up carcass sides (pieces 6) created with 1/4" hardwood plywood and applied hardwood slats (pieces 7). Cut your plywood sides with a sharp, thin kerf saw blade designed for this operation. Stay at your table saw to make the horizontal dividers (pieces 8) from 3/4" hardwood plywood. Slice the two drawer walls (pieces 9) from your remaining plywood and the four drawer glides (pieces 10) from solid hardwood, and you're ready to move on to your first subassembly.

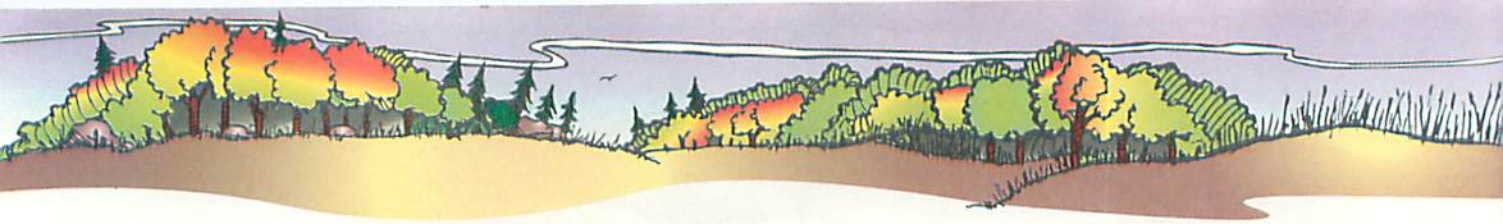
Carcass Subassembly

Edge glue and clamp four pairs of top and middle rails (pieces 3 and 4) together. Do the same with four pairs of bottom and lower rails (pieces 3 and 5), and allow the glue to cure. Move back to your router table (the one you left set up with a 1/4" straight bit), and plow 1/2" deep grooves in the appropriate edges of the middle rails (pieces 4) and glued-up rail subassemblies (see **Figure 1**). Check the **Elevation Drawings** for all of the machining details. When that task is complete, move to a large, flat work surface and test fit the right and left sides and the front and back subassemblies.

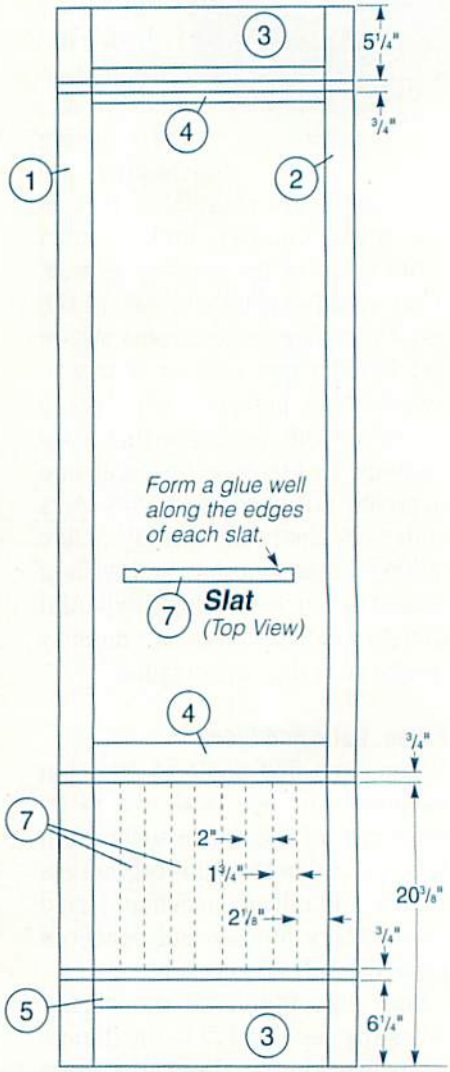




The "bread-and-butter" stile and rail construction at this cabinet's heart is pleasing to the eye. A table saw and a good router table are all you need to build this great heirloom project.



Side Subassembly
(Inside View)



Note: this view shows the shelf dado locations.

Material List *(Carcass)*

		T x W x L
1	Wide Stiles (4)	3/4" x 2½" x 75¾"
2	Narrow Stiles (4)	3/4" x 2⅛" x 75¾"
3	Top and Bottom Rails (8)	3/4" x 4¼" x 18¼"
4	Middle Rails (7)	3/4" x 2½" x 18¼"
5	Lower Rails (4)	3/4" x 2¾" x 18¼"
6	Sides (3)	1/4" x 18¼" x 14¾"

Gun Cabinet Project Supplies

The following supplies are available from Woodworker's Journal.

Drawer Lock* #17790.....$17.99 ***Hinges (pair)* #31365.....$5.79***

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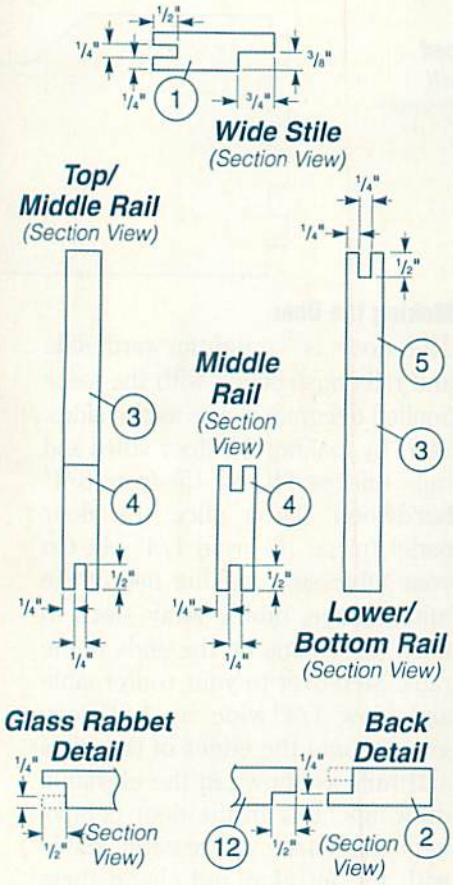
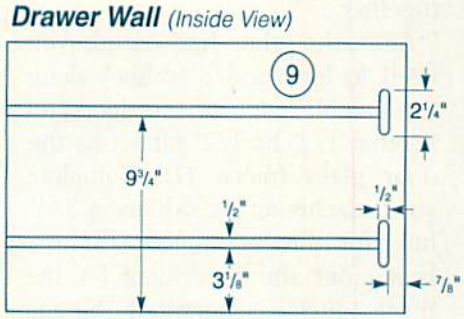




Note: this view shows the drawer glide grooves and strike plate mortises.

Notice the orientation of the wide and narrow stiles is critical to properly assembling the cabinet, as shown in the **Elevation Drawing** on page 65. Once all of your subassemblies' various parts fit together well, take them apart and re-clamp them together using a good quality yellow glue, making sure each panel is flat and square as you go.

There are a few more machining steps to take care of while the glue is curing. Find the drawer walls you cut earlier and lay out the matching drawer glide grooves and the locks' strike plate mortises. Use a straightedge guide and your portable router equipped with a 1/2" straight bit. Rout the 5/16" deep grooves for the drawer glides and then use the same bit to create the mortises for the strike plates.

Face the front edge of the middle divider with hardwood tape (piece 11), and trim the back of the divider by the thickness of the tape. Drill a 1" diameter hole dead center on the top divider — sorry, most drill presses lack the throat depth to reach the middle of this 21¼" square panel, so you'll have to drill straight with a Forstner bit chucked into your hand-held drill.

Remove the clamps from the carcass subassemblies and scrape off any excess glue squeeze-out. Using your tri-square and straightedge, lay out all of the grooves for the horizontal dividers on the inside faces of each of the four subassemblies.

Chuck a 3/4" straight bit into your portable router and, with the aid of a clamped-on straightedge, plow the grooves you just laid out. This is the time to make the rabbets for the back (piece 12) and the glass (pieces 13). Now, chuck a 1/2" bearing-guided rabbeting bit into your router and rout the rebates as shown in the **Elevation Drawings**. (Hint: **never** order glass until you measure (twice!) the opening you machined for it.)

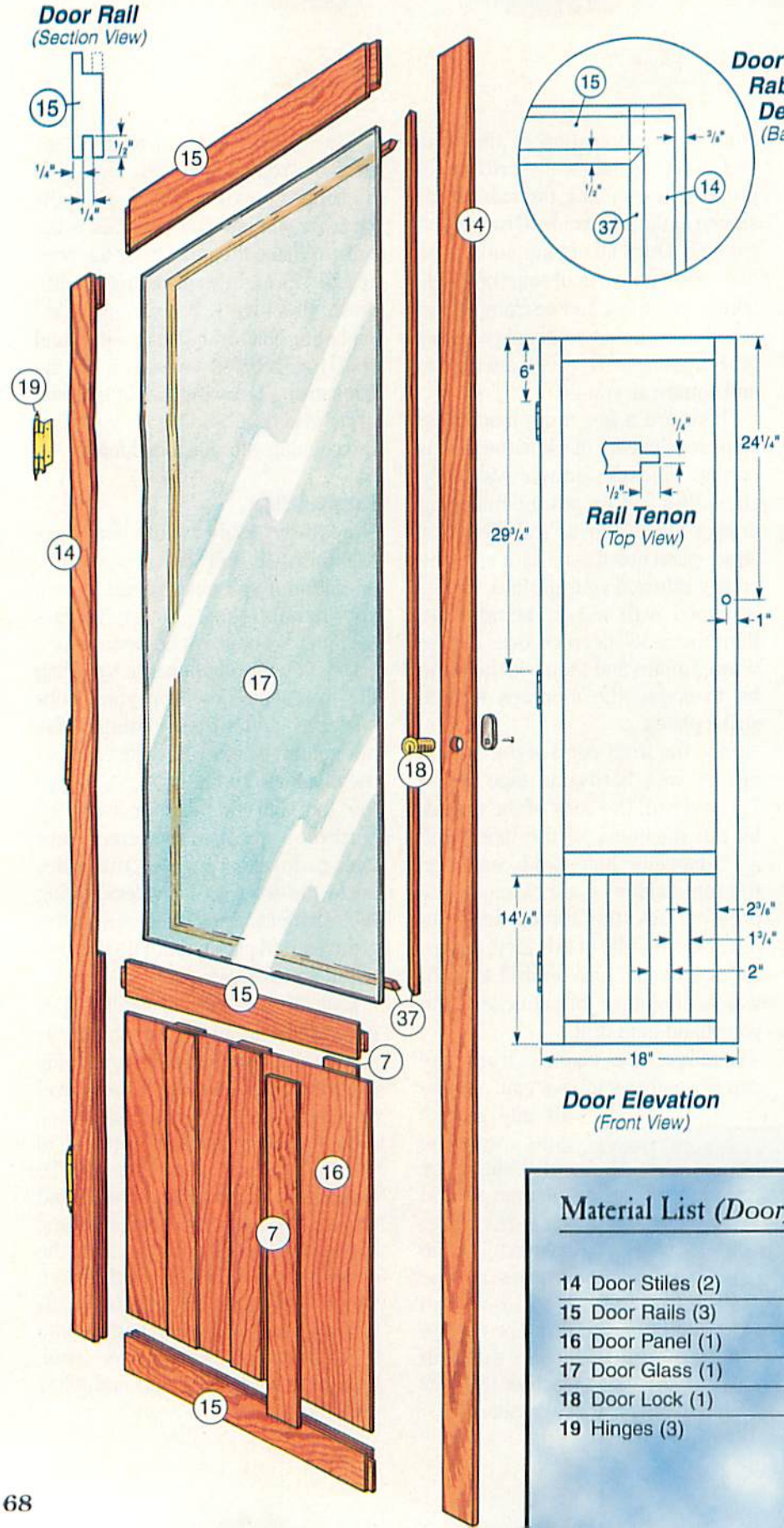
Body Building

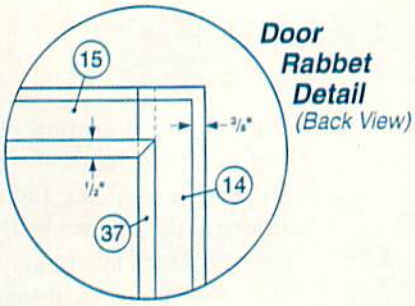
Now you're ready to put some parts together. It will be a smoother operation if you get a friend to help you handle these larger carcass sections ... but it can be done solo.

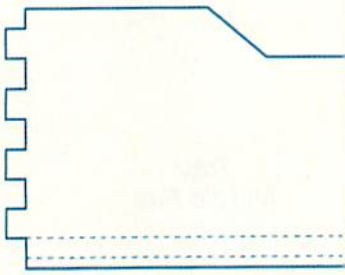
Dry fit your components by laying the front face down on your work surface and then fitting the horizontal dividers in place. Note: the divider with the hole is placed at the top and the divider with the hardwood tape is in the center (tape facing down). Snuggle the sides up to the front and dividers, fitting the dividers into their respective grooves, and clamp them up through the glass openings.

Test fit the drawer walls; they must slide in place, touching the middle and bottom dividers, running squarely back from the front drawer opening. Then, drop the back subassembly in place and see if all of your joints are tight. Once you're happy with the fit, disassemble and repeat the steps with glue in the appropriate joints, until you slide the drawer walls in place (with glue). Pause here and drive finish nails through the middle and bottom into the edges of the drawer wall. Continue the task, clamp and allow the glue to cure.

		T x W x L
7	Hardwood Slats (1)	1/8" x 1¾" x 235"
8	Top, Bottom & Middle Divider (3)	3/4" x 21¼" x 21¼"
9	Drawer Walls (2)	3/4" x 20¾" x 13⅜"
10	Drawer Glides (4)	1/2" x 1/2" x 20⅛"
11	Hardwood Tape (1)	7/8" x 100"
12	Back (1)	3/4" x 18¼" x 46¾"
13	Glass (2)	Measure to fit







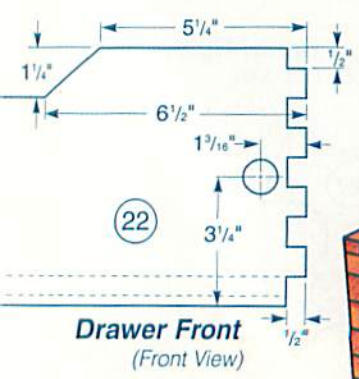
Making the Door

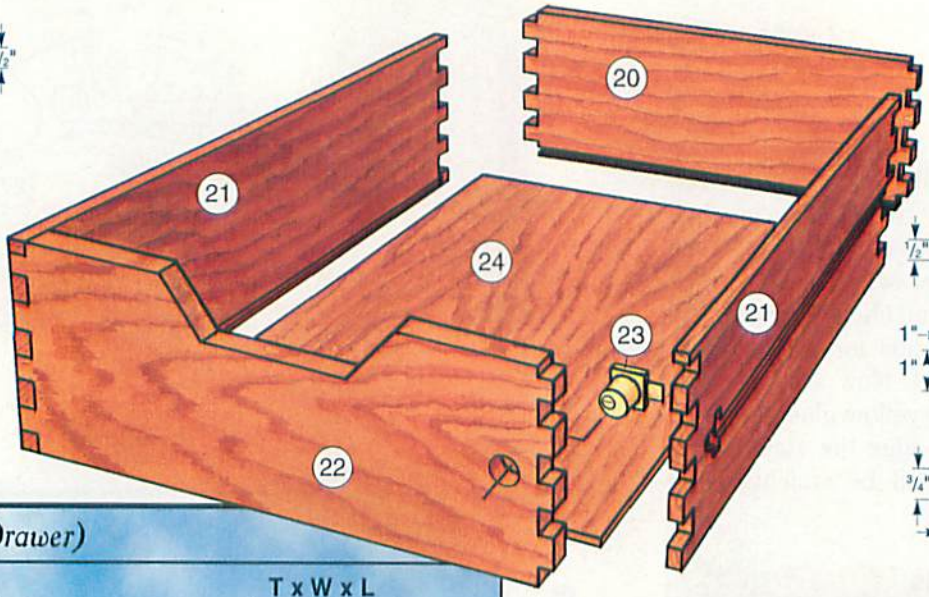
The door is straightforward stile and rail construction with the same applied decorative slats as the sides. Start by making the door stiles and rails (pieces 14 and 15) from 3/4" hardwood. Then slice the door panel (piece 16) from 1/4" ply. On your table saw, making use of the miter gauge, nibble away stock to form the tenons on the ends of the rails. Step over to your router table and plow 1/4" wide by 1/2" deep grooves into the edges of the stiles and rails as shown in the elevation drawings. Test fit the door components and, once you're comfortable with the fit, glue and clamp them together.

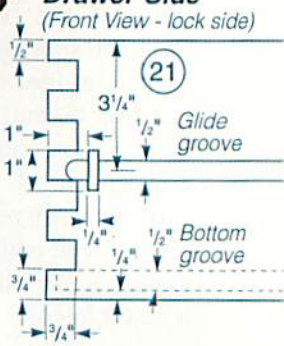
After the glue has cured, you need to form a 3/8" rabbet along the outside edge of the door and another 1/2" by 1/2" rabbet for the door glass (piece 17). Complete your machining by drilling a 3/4" hole for the lock (piece 18) and laying out and predrilling for the three surface mounted hinges (pieces 19). With this done, you can temporarily hang the door to test the fit and check the lock.

Material List *(Door)*

		T x W x L
14	Door Stiles (2)	3/4" x 2" x 62 3/4"
15	Door Rails (3)	3/4" x 2 1/2" x 15"
16	Door Panel (1)	1/4" x 15 x 12 5/8"
17	Door Glass (1)	Measure to fit
18	Door Lock (1)	Brass
19	Hinges (3)	Brass







Material List *(Drawer)*

	T x W x L
20 Drawer Backs (2)	1/2" x 6½" x 18¼"
21 Drawer Sides (4)	1/2" x 6½" x 20⅝"
22 Drawer Fronts (2)	3/4" x 6½" x 18¼"
23 Drawer Locks (2)	Brass
24 Drawer Bottoms (2)	1/2" x 17¾" x 19⅛"

Finger Jointed, Locking Drawers

When it comes to gun cabinets, drawers are definitely not an afterthought. They are the key to safely separating the guns from the ammunition. That's why you'll want to use separately keyed locks from the door.

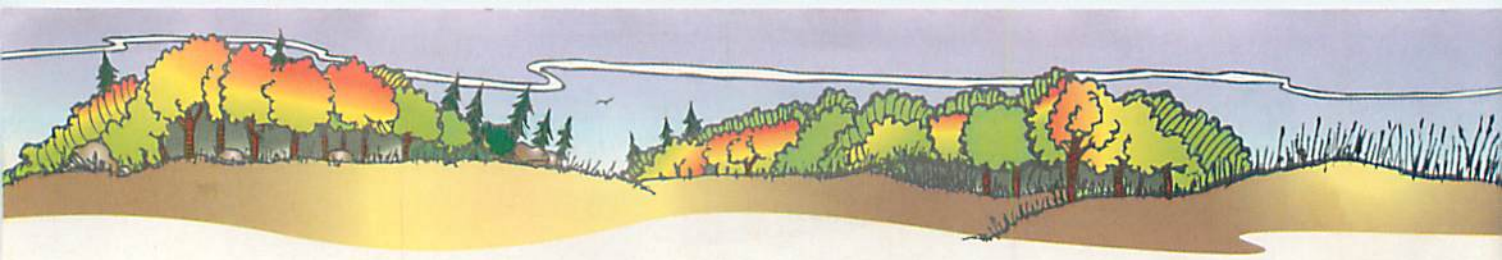
Cut the blanks for your drawer backs and sides (pieces 20 and 21) from 1/2" stock but make the fronts (pieces 22) from 3/4" stock to accommodate the locks (pieces 23). Form the drawer fronts' profile on the band saw. Create 1/2" finger joints on your table saw with an auxiliary fence on your miter gauge and a registration key mounted to it (see **Figure 2**). Next, groove the fronts and backs with 1/2" wide by 1/4" deep grooves running their whole length to capture the drawer bottoms (pieces 24). The sides need their grooves stopped to accommodate the finger joints. Also, groove the sides on their outside faces to accept the drawer glides which you made earlier. Bore 7/8" holes through the drawer fronts for the locks and chop through mortises in the sides so the locks' throws can pass through the drawer sides. With the machining completed, dry fit the parts and move on to gluing and clamping once everything fits.

Figure 2: Finger joints are a strong and attractive drawer joining option. A dado head and a miter gauge with a keyed fence register each finger joint accurately. Always test your set-up on scrap lumber to avoid problems.

Carriage for Eight

The circular carriage allows you to display eight guns in a surprisingly small space. I used a heavy-duty lazy Susan because ... guns are heavy!

Cut a 20" diameter circle from 3/4" plywood to make the base (piece 25) and cover the edges with more hot melt hardwood tape. Next, glue up hardwood blanks to make the gun caddy (piece 26) and barrel guide (pieces 27). Lay out the various notches and the circular shapes found in the **Elevation Drawing**, and move to your band saw to shape the blanks. Use a 1/4" roundover bit to soften the edges of the cut-out areas. Attach the gun caddy to the base with clamps and glue. Drill 3/4" diameter stopped holes where indicated to accept the hardwood dowels which make up the struts (pieces 28). A 1" dowel runs from the top of the barrel guide up through the hole in the center of the top horizontal divider. This stabilizer (piece 29) has a rectangular key (piece 30) notched into one end of the dowel to fit into a matching mortise on the barrel guide. Form the key, notch out the



end of the stabilizer on a band saw and glue the two pieces together. Start the mortise on the top of the barrel guide with a one inch Forstner bit and chop the remaining squared-out ends for the key with a sharp chisel. Now assemble the carriage with yellow glue and set it aside. (Don't glue the stabilizer in place — it will be attached with a screw later.)

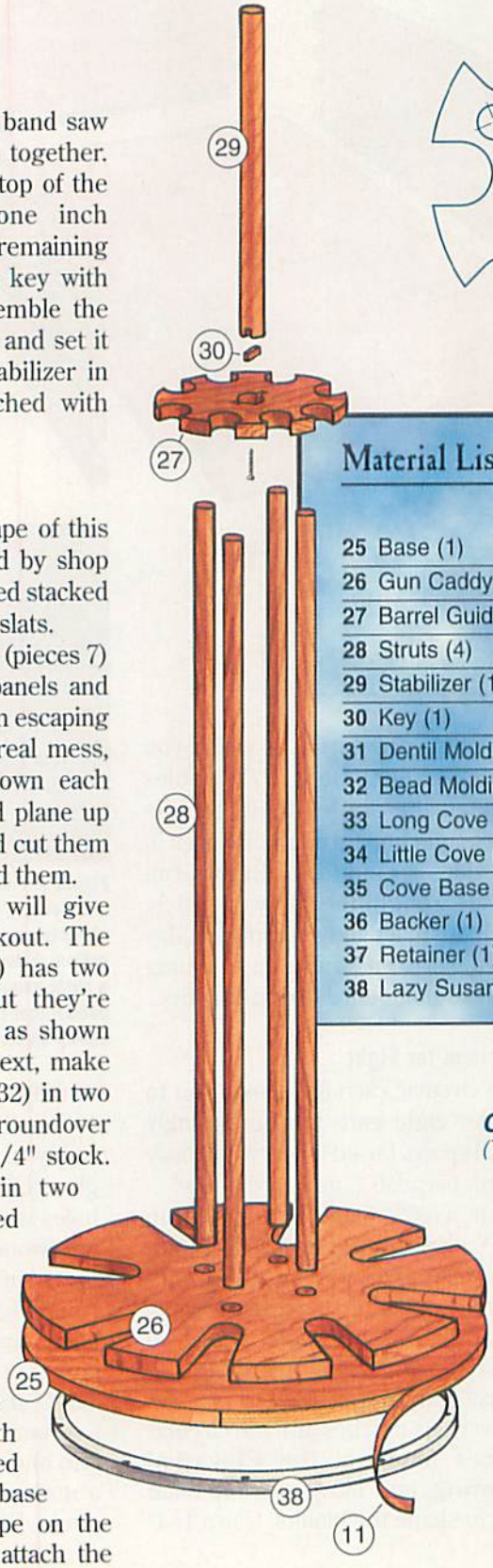
Details, Details

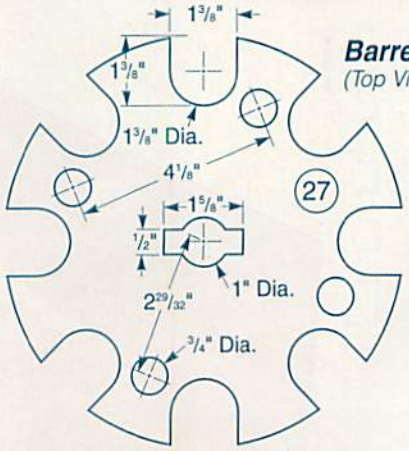
The basic rectangular shape of this gun cabinet is accentuated by shop made dentil molding, shaped stacked moldings and flat, built-up slats.

It's time to glue the slats (pieces 7) in place on the carcass panels and door. To keep the glue from escaping the edges and making a real mess, relieve two glue wells down each edge of each slat. Rip and plane up long pieces of the slats and cut them to exact length as you need them.

The stacked molding will give your router a real workout. The dentil molding (piece 31) has two different thicknesses, but they're machined the same way, as shown in the sidebar at right. Next, make the bead molding (piece 32) in two steps, using a 1/4" radius roundover bit on the edge of your 3/4" stock. This molding is used in two locations on the stacked molding, as shown in the detail on the next page.

Make the long cove (piece 33), with a vertical panel raising bit in your router table. The little cove (piece 34) is made with a 1/2" radius bearing guided cove bit. Cut the cove base molding's (piece 35) shape on the same set-up. Before you attach the





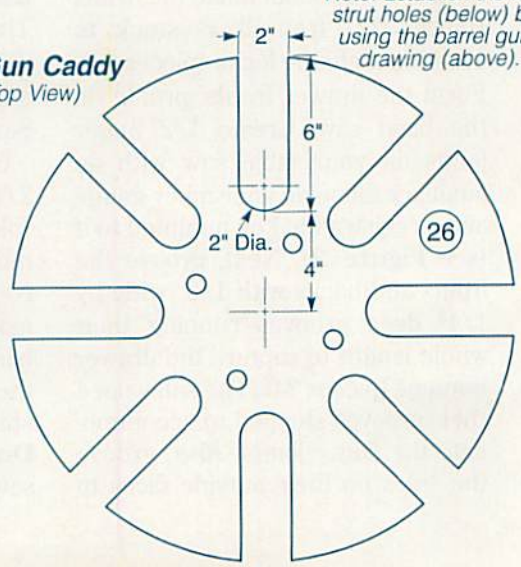
Barrel Guide
(Top View)

Material List *(Carriage and Moldings)*

	T x W x L
25 Base (1)	3/4" x 20" x 20"
26 Gun Caddy (1)	3/4" x 20" x 20"
27 Barrel Guide (1)	3/4" x 8¼" x 8¼"
28 Struts (4)	3/4" Dia. x 34"
29 Stabilizer (1)	1" Dia. x 15"
30 Key (1)	1/2" x 1/2" x 1⅝"
31 Dentil Molding (1)	3/4" x 3/4" x 200"
32 Bead Molding (1)	3/4" x 1½" x 210"
33 Long Cove (1)	7/8" x 1¾" x 100"
34 Little Cove (1)	3/4" x 1/2" x 100"
35 Cove Base (1)	3/4" x 3¾" x 100"
36 Backer (1)	1/2" x 2½" x 96
37 Retainer (1)	1/4" x 1/4" x 255"
38 Lazy Susan (1)	Steel (heavy-duty)

Note: Establish the four strut holes (below) by using the barrel guide drawing (above).

Gun Caddy
(Top View)



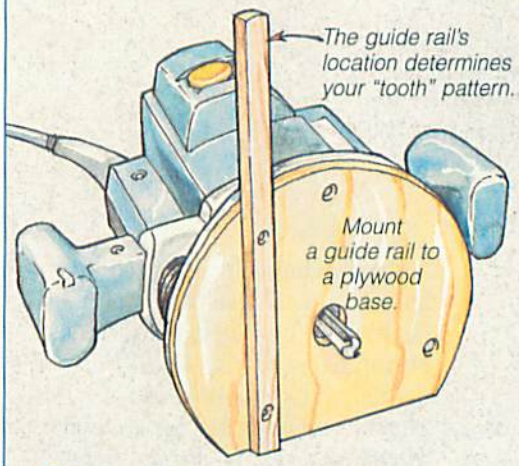
molding, wrap the top of the case with a 1/2" plywood backer (piece 36) to add dimension to the crown molding effect. Now miter the moldings around the gun cabinet, starting from the top down and attaching it with glue and clamps. For the two bottom molding elements, start from the bottom and work up.

The last machining step is to make the back and form a rabbet along the inside edge of the back. Test the fit and then glue and nail it in place with brads. Remove the door if you haven't already done so and attend to a few details like mounting the locks and strike plates and gluing the drawer glides in place. Also, machine up lengths of retainer strip (piece 37) to hold the glass pieces in place. Sand the entire cabinet up through all the grits to 320 grit. While some folks will disagree with me, I think nothing looks as good on cherry lumber as a high quality oil finish. I recommend four coats of Watco oil with an ultra light steel wool (0000 grade) rub down between coats.

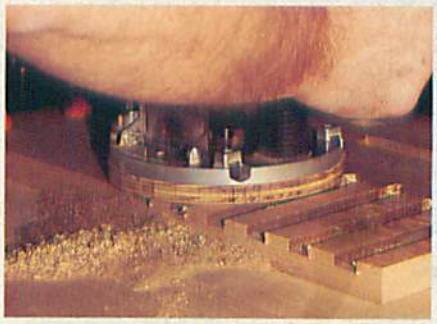
Mount your door and the glass panels, set the lazy Susan (piece 38) in the cabinet, place the carriage on top of it, and slide in your drawers.

Woodworkers and outdoor people share at least one thing in common — the love of the lore associated with their hobby. So sit back, and when your friends ask you about your gun cabinet, you can decide which avocation you're in the mood to tell tall tales about.

Dentil Molding

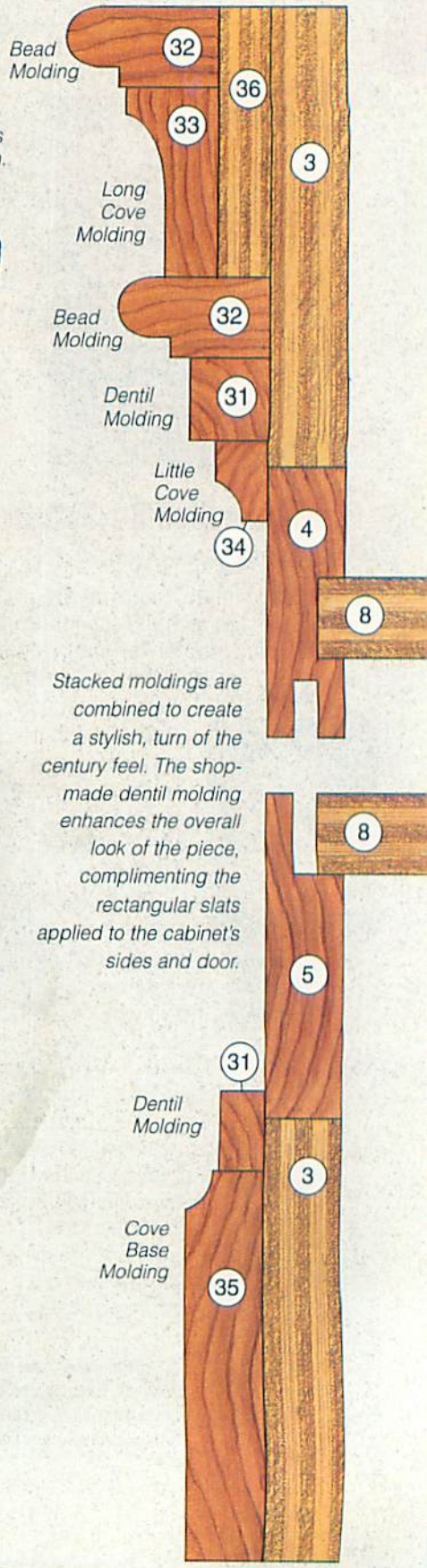


Create dentil molding as you need it with this simple jig. Mount a new plywood base on your router. Make a guide rail of the same thickness and depth as you desire for the dentil's "teeth". Start with wide boards and then, on your table saw, rip the dentil molding off, piece by piece, with a sharp thin-kerfed blade.



Run the guide rail against the end of the board to form the first dado. Then drop the guide into that dado to form the second one, continuing until you reach the end of your stock.

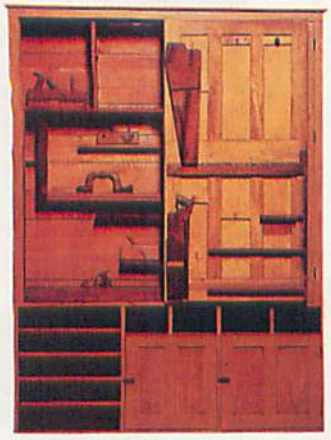
With the dentil dadoes cut, simply rip off lengths of molding on your table saw. Be sure to use a very sharp blade for best results.



Stacked moldings are combined to create a stylish, turn of the century feel. The shop-made dentil molding enhances the overall look of the piece, complimenting the rectangular slats applied to the cabinet's sides and door.

Movers and Shakers

By Joanna Werch Takes



For the Shaker who made this tool cabinet circa 1840, the final design was only one step in the pursuit of perfection.

According to a Shaker sister, "religion produced good chairs" like this rocker from around 1840.

Shakers: Not So Simple

Religion Shapes Furniture

"Plain and simple" sums up the popular image of Shaker furniture, Smithsonian curator Jeremy Adamson said during a show of Shaker pieces — but woodworkers need to remember other influencing factors.

"We look at the period 1820 to 1840 as the heyday of Shaker design. Shakers didn't see it that way," Adamson explained. Instead, they believed in striving for perfection. An 1824 tool chest might be "perfect" for its time, but the design was open to later improvements.

Shaker simplicity reflected their attempts to achieve perfection: the contrast of their designs with the elaborate art of "the World" demonstrated the holiness of Shaker communities' separate lives. Their work clearly showed the value Shakers put on cleanliness and longevity. They expected their furniture to last 1,000 years, Adamson said, so it had to be easy to clean the drawer pulls.

For today's woodworkers interested in building like the original Shakers, Adamson said, "If they want to go beyond the simple replication of a plan and reflect some of the perfectionism, a lot has to do with trying to make the piece as light as possible, and as elegant, as though it might just lift off." The wood color, grain direction, and overall balance of the piece, all play a role.

The upward motion, Adamson said, "has a prayerful effect," — echoing a Shaker sister who said, "It was religion that produced the good tables and chairs."

A Smithsonian show of Shaker objects included "typical" items like baskets, constructed between 1830 and 1880 — and an 1806 tall clock that dates to a first generation Shaker craftsman, still influenced by experience in the outside world.

Sibling Synergies

Shorter waits and lower prices: that's what a spokesman says you should get when tool companies Delta and Porter-Cable combine their customer service and distribution facilities early next year. Porter-Cable's Todd Langston said the companies will be able to make more cost-effective shipments to distributors, who should in turn pass the savings on to consumers. And if you happen to be ordering a Delta table saw and a Porter-Cable router, they will both come from the same place at the same time. Sharing resources makes sense for the sibling companies: Pentair is the parent of both.

A Wood Wannabe

Turning Out a New "Wood"

Ted Vandenheuvel chose good neighbors. No, the Argyle, Manitoba woodworker doesn't get to regularly "borrow" their fine tools. Instead, he gets to be one of the first to experiment with their new engineered board product.

Isobord™ is an engineered panel made from finely chopped wheat straw and a synthetic polymer resin. A manufacturing plant is located in Elie, Manitoba, right down the road from Ted's home. The formaldehyde-free manufacturing process is just one part of the product's environmental friendliness. The main component is straw gathered after the wheat harvest.

Ted, who's been making bowls, vases and coasters, says the strawboard has "a golden hue with lots of character" after varnishing. He's been having fun as one of the first woodworkers to try out an exciting new product. "I'm like a kid in a candy shop," he said.

Pennsylvanian Bif Jones, another early tester, likes that Isobord is 20 percent lighter than comparable cores: it costs less to ship his chessboards. To find out more about Isobord, call 503-242-7345 or visit their web site at *www.isobord.com*.

Shop Talk continues on page 74 ...

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... *continued from page 73*

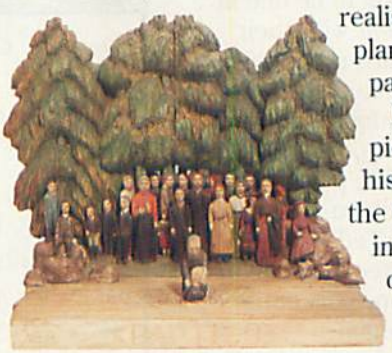
Carvings Rediscovered

Pocket Knife Artistry

In 1926, photographer William Neher made a portrait of himself surrounded with some of the results of his prolific carving hobby.

From 1899 to 1961, Illinois photographer William Neher produced dozens of elaborate carvings. For more than 30 years after his death, most of his work lay undiscovered.

Then, in the 1990s, someone finally decided to clean out the photography studio's basement. Folk art collector Merle Glick saw the pieces, and the result was a traveling show of Neher's carvings.



"Baptizo" by William Neher

According to Glick's research, Neher learned to carve while living in Arkansas between 1899 and 1902, and continued his hobby after moving to Chenoa, Illinois to open a photography shop in the early part of the 20th century. His tools were limited to a pocket knife, screwdriver and sandpaper, but his ideas spanned a wide range. For instance, Neher carved a three-dimensional tableau of his own minister father performing a baptism along a riverbank. He also carved a version of DaVinci's "Last Supper." Most of Neher's works, however, were original. Several, like an oversized walnut chair with realistic fish and water plants, celebrate his passion for fishing.

photos courtesy of Lakeview Museum

Most of Neher's pieces remain with his descendants, but the Lakeview Museum in Peoria, Illinois owns one and expects to acquire more. The Neher show is at the State of Illinois Art Gallery in Chicago until October 22 and at the Illinois State Museum in Springfield from November 7, 1999 to January 2, 2000. If you're planning to be in the area, call the Springfield museum at 217-782-7387.

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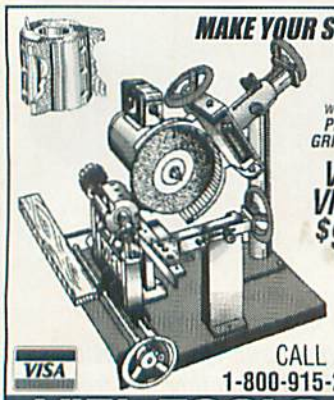

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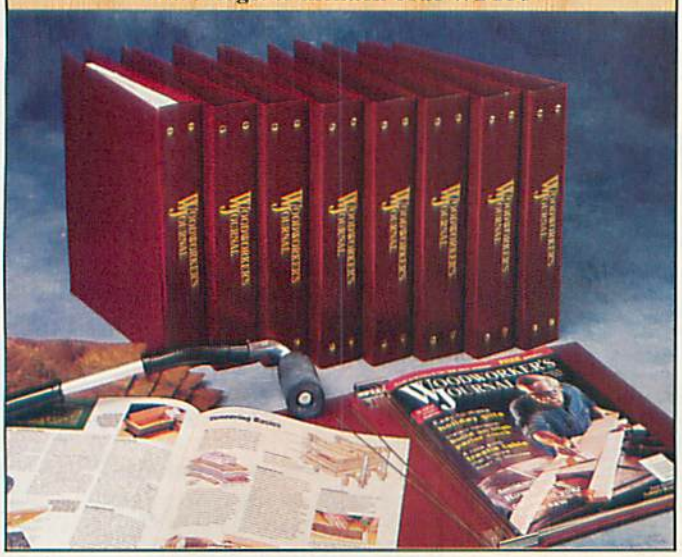

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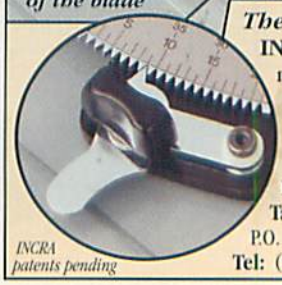

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A Tender Spot for Old Tools

A mystery in a box: this old tool came with its own carrying case.

Q *I really like old tools, so I pick up quite a few at different sales. I thought this one was interesting, but I don't know what it is.*

Phil Flesland
New London, Minnesota

A Thanks for asking, Phil, and thanks for letting the *Woodworker's Journal* staff play with your tool. We were fascinated when we pushed the lever on top and watched the 12 small blades rotate out of slots in the bottom. When we turned a round knob next to the lever, we succeeded in adjusting the height of the blades. The purpose of the wheel-shaped serrated knob on the side wasn't obvious. We're pretty sure that your little tool (it's about 1¾" diameter, 1⁵⁄₁₆" high) is for cutting something, but we're hoping the rest of our readers can tell us what. Anyone out there with your thinking muscles ratcheted up? Send in your response!

Q *My Stanley tape measure has a little diamond at 19¹³⁄₆₄", at 38¹³⁄₃₂", and so on to the end of the tape. Can anyone tell me what the purpose of this is?*

Mark Kilmer
Liberty, Kentucky

A When we got your letter, everyone at Woodworker's Journal pulled out our tape measures, looked at the diamonds, and said, as a group, "Huh." Then we called Stanley Tools.

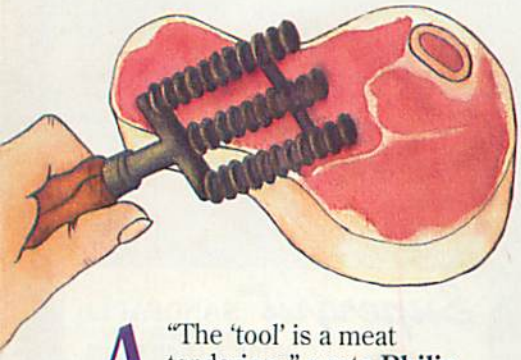
Here's the ruling from Stanley: Tape rules have diamonds every 19.2 inches to assist carpenters in laying out I-joists for floor trusses. Using engineered lumber and a spacing of 19.2" between joists, carpenters can cover eight feet of space with only five joists — as opposed to six joists for the same space if they were using dimensional lumber at 16" spacings. The diamonds seemed like such a good idea for carpenters that they've become a standard part of every tape measure printed.

Diamonds are a carpenter's best friend — especially if he's laying floor joists.

Q *The mystery tool in our August issue (pictured below, at right) is another one from Phil Flesland's collection. We're not entirely convinced we've found the definitive answer — so here's a few stabs from our readers.*

The Editors
Woodworker's Journal

Winner! For taking time to respond to Stumpers, Philip Rudell of Shakopee, Minnesota wins a collection of American Tool's Quick Grip clamps. We toss all the Stumpers letters into a hat to select a winner. If you have a question or answer, send it us: Stumpers Dept., Woodworker's Journal, P.O. Box 261, Medina, Minnesota 55340. Or e-mail us: editor@woodworkersjournal.com



A "The 'tool' is a meat tenderizer," wrote **Philip Rudell** of Shakopee, Minnesota. "You pound flour into round steak with this to make the meat tender." **Theo Ninneman** of Sheboygan, Wisconsin, agreed with the function: "My mother-in-law, a farm lady, used it on some of their home-killed beef," he wrote.

Cliff Egger of Cedar Rapids, Iowa, still has his mom's meat tenderizer. "I have it in my collection of collectibles," he notes.

For **Ron Smith** of Fort Walton Beach, Florida, the tool brought back memories of his dad. He admits the tool probably wasn't designed for the purpose, but said his dad used a tool like this for wrapping chalk line. "He often had lines that ran 50 to 100 feet, and this gadget held the string quite nicely," Ron said.

William Lacy of Marion, Iowa, had his own theory about what the tool was for. He called it a densimeter, used to determine the density — or specific gravity — of syrup or sorghum. "When the sorghum would span the discs, it was time to remove it from the heat," he wrote.

Love your meat tender? The mystery tool from the August issue is what you need.

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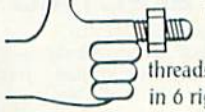

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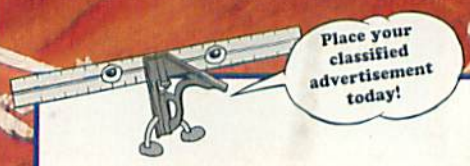

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The Very Fein MultiMaster

By John English

Woodworkers unanimously hate it. It's the job most likely to be dumped on the lowliest apprentice in a cabinet shop. We're talking here about detail sanding, the nitty-gritty, slow process that bedevils almost every project we build. Well, the task just got a little easier, thanks to Fein Tools, Inc. of Stuttgart, Germany. Their new, variable speed MultiMaster is the tool most of us have dreamed about as we meticulously sanded between spindles, into corners or around an inside curve. Sure, there are lots of detail sanders on the market. But this one is special: it's built to meet the rigors of a pro environment, at a street price that makes it available to pretty much anyone's budget. I shop-tested the MultiMaster and liked what I found.

While most folks think of the MultiMaster as a detail sander, it's at home in the shop doing lots of different tasks. This German import is a sound addition for hobbyist and professional alike.

The Standard Kit

The kit I received included the variable speed, oscillating tool plus a sanding head and paper, a power scraper and a cut-off saw. I also checked out the optional accessory kit that included a slicing scraper, a carbide-coated rasp, and a grout removal tool.

The first thing I discovered about the MultiMaster is it sands into corners and up against edges with virtually no kickback, a welcome change from some of its less expensive competitors. This is in large part due to the oscillating pattern and length of stroke, both of which are quite controlled. It may also be attributed to the MultiMaster's considerable heft (just under 2.5 lbs), a factor that gives it a solid feel but may weigh heavily on the operator after several hours' use.

Detail Sanding

The MultiMaster runs very quietly, which is a real asset in close quarters where most detail sanding seems to occur. The action is aggressive and quickly removed clear finishes and paints right up to the edges of spindles and dowels. Finer paper left a clean, swirl-free surface, ready for refinishing.

Changing sandpaper was quite simple, as the sanding pad and supplied papers were both equipped with hook and loop surfaces. The three-point design of the pad cuts down on waste: when the paper on the leading point became clogged, I simply peeled it off, rotated it 120° and went right back to work. The pad and papers are generously sized, but are not so large that they won't fit into tight spots. All in all, with a small reservation about weight, I found the MultiMaster to be a superb detail sander.

A handy solution to detail sanding and much more. This sturdy and versatile tool has a variety of accessories and uses.

A well thought-out collection of accessories and the power to drive them all. The triangular sanding pad (secured with hook and loop) makes efficient use of sandpaper. All of the accessories are easy to attach with a simple hex wrench system.

Sawing

Though more suited to finish carpentry than furniture building, the flush-cut saw found several uses in my woodshop. It's an ideal tool for installing trim and moldings, and it came in useful for trimming veneers and flush trimming plugs. I tested the blade in plastic, oak and pine. In the wood, it tended to overheat and burn quickly if it wasn't kept moving. So I checked the instruction manual (when all else fails ... read the directions) and discovered that high speeds are recommended for wood, and a cutting grease or paste extends the service life of blades used in plastic or even soft metal (optional high-speed steel saw blade is required). The blade is only 0.5 mm thick, so the saw kerf is negligible.

Other Accessories

The MultiMaster comes with a power scraper which is ideal for removing paint after stripper has softened it, or for getting rid of that awful adhesive residue left behind when you remove carpet or laminate.

One of the most useful options available from Fein is the carbide-coated rasp. This accessory works on plaster, cement, adhesive, wood, tile, filler and brick. It's ideal for rough sanding any of these surfaces during patching or finish work. The rasp can also be used in

Tool Preview continues on page 86 ...

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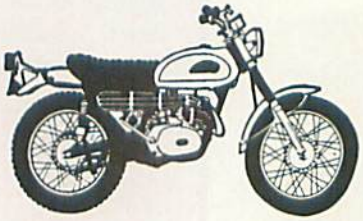

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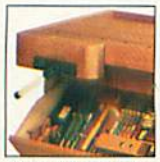

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Fein Info	800-441-9878
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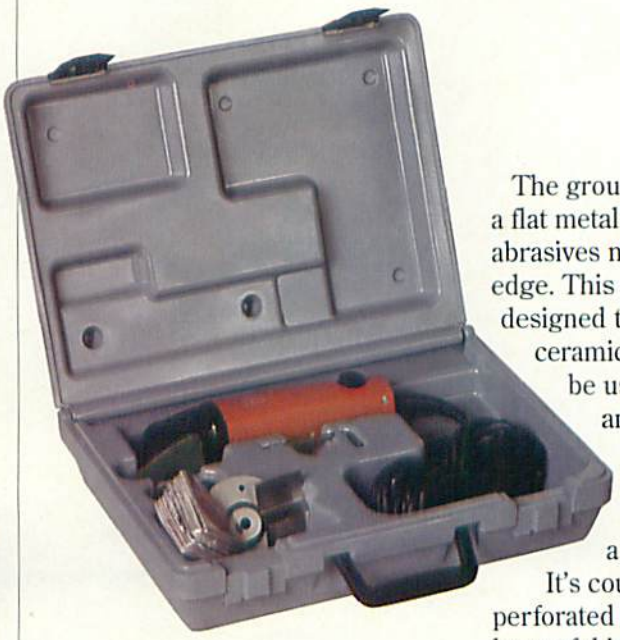
... continued from page 83



the early stages of wood carving, to remove large amounts of material. I found a follow-up treatment with several grits of sandpaper reduced this coarse forming to a smooth, finishable surface. Attaching the rasp is just a matter of unplugging the tool, removing the set screw and replacing it once the rasp is in place. This is another accessory that must be moved constantly, as the abrasive grit is very aggressive.

Another Fein offering is an optional convex segment knife that can be used to cut carpet, linoleum, window screen and other rigid materials. This kind of cutter has already found a home in boat building where it is used to remove old polyurethane, silicone and marine glue fillers.

The grout removing blade is a flat metal disk with strong abrasives melded to the outside edge. This blade was specifically designed to be plunged into ceramic tile grout, but can also be used to saw into drywall and porous concrete.

An accessory on the way, but not available at the time of the test, is a dust collection adapter. It's coupled with specially perforated sandpaper, and should be useful in close quarters. (Although I did not find the dust produced to be troublesome.)

The MultiMaster operates on 120V/60Hz standard household current at a rated input of 160W. The oscillation rate varies between 12,000 and 21,000 orbits/minute, and the tool operates at a sound level that is typically less than 75 dB(A). Ear protection is recommended when the tool is in contact with any material. The MultiMaster carries standard industry warranties: for more information, retail pricing or to locate a dealer near you, call Fein Power Tools, Inc. at their U.S. headquarters in Pittsburgh, Pennsylvania. The number is 800-441-9878, or visit them online at www.feinus.com.

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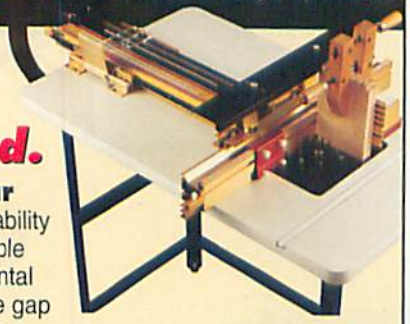

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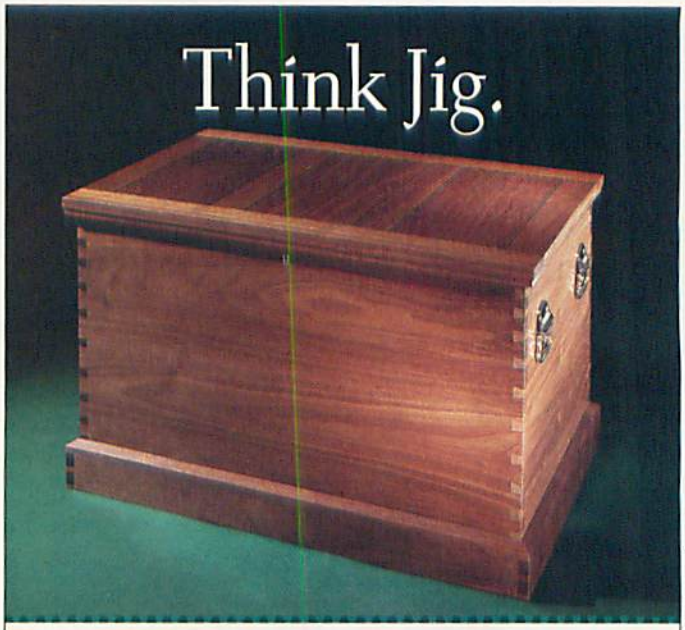

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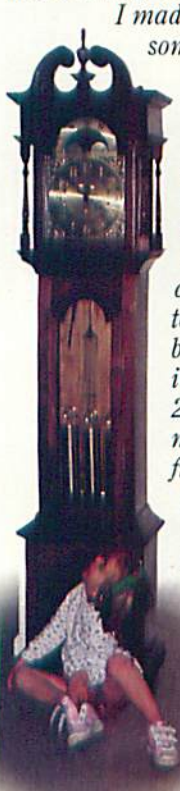
Gifts "Four" Families

Time Flies When You're Having Fun

I can't believe it was almost 15 years ago that I saw the grandfather clock shown in WJ Vol. 8, Nos. 5 and 6.



I made up my mind that some day I would build it. Last fall, I decided it was time to make it for my granddaughter. Starting with rough sawn walnut, it took about six months to complete. Your writer took 130 hours to build yours; I estimate it took me closer to 250 hours to build mine, having great fun the whole time.

Enclosed is a picture of my granddaughter checking out the clock.

James Neighbors, Jr.
Ridgefield, Connecticut

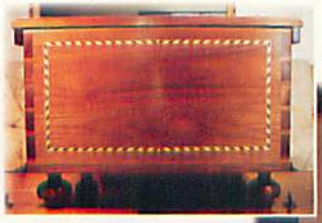
WJ responds: You finished just in time: your granddaughter can ring in the new millennium in grand style!

The Family ... Chests

You may be interested in a project I completed from WJ Vol. 15, No. 3. My oldest daughter wanted a small chest where she could store private papers and miscellaneous items. We decided to build the Pennsylvania small chest and, because I have a wife and we have three children, I decided to make four of them. Per your suggestion to try Qualasole, I did, and am very pleased with the results.

Kenneth Peterson
Paynesville, Minnesota

WJ responds: All your chests look great, Kenneth!



Kenneth Peterson added a lock and a stop chain to the Pennsylvania small chest from Woodworker's Journal Vol. 15, No. 3.

Chests Full of Love

I built four blanket chests, from Woodworker's Journal Vol. 11, No. 1, for our granddaughters for Christmas. This was truly a project of love. I loved the results and, of course, I love our granddaughters. I spent most of the summer learning to make dovetail joints until I felt confident enough to handle this project.

Harold Mayer
Kenosha, Wisconsin

WJ responds: You're obviously a fast learner. We can tell your granddaughters are happy with their gifts.

Collects National Prize

I have a woodworking class in my home twice a week for the students at Green River Bible Baptist School. For this table from Today's Woodworker Issue 56, builder Jace Nix did a good bit of the work after school.

He modified the table to store a chessboard below the drawers. Jace and his table won the Christian schools' regional competition, then took first place nationally. He has a beautiful table with a functional design, thanks to your fine magazine.

David Swindell
Green River, Wyoming

WJ responds: Jace's table looks like a winner to us, too. Congrats to teacher and student!

Winner! Harold Mayer will receive a Bosch 1587 AVS jig saw for his contribution to End Grain. Send your letters and photos to: End Grain, Woodworker's Journal, P.O. Box 261, Medina, Minnesota 55340. If we publish yours, we'll throw your name in a hat for our free tool drawing. Photos of projects from the Woodworker's Journal or Today's Woodworker are eligible.

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12" x 30T x 1"	~~$119~~	$107	$95
10" x 40T x 1/8" or 3/32"	~~$119~~	$107	$95
10" x 30T x 1/8" or 3/32"	~~$99~~	$89	$79
9" x 40T	~~$109~~	$98	$87
9" x 30T	~~$99~~	$89	$79
* 8 1/4" x 40T x 3/32"	~~$99~~	$89	$79
8" x 40T x 3/32"	~~$99~~	$89	$79
8" x 30T x 3/32"	~~$89~~	$80	$71
7 1/4" x 30T x 3/32"	~~$69~~	$62	$55
**6" x 40T x 3/32"	~~$69~~	$80	$71

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8 1/4" x 60 T – Sears, Delta, Ryobi	~~$109~~	$98	$87
8 1/2" x 60 T – Hitachi, Dewalt, Ryobi, FreudTR125	~~$119~~	$107	$95
9" x 80 T – Delta & Others	~~$129~~	$116	$103
10" x 80 T – Delta, Bosch, Mitachi, Makita, Ryobi, AEG, & All	~~$139~~	$125	$111
12" x 80 T – Dewalt, Hitachi, Makita, B+D, Sears, & All	~~$149~~	$134	$119
14" x 100 T – Makita, Ryobi	~~$189~~	$170	$151
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